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Trucking, Live Stock and the Fireside.

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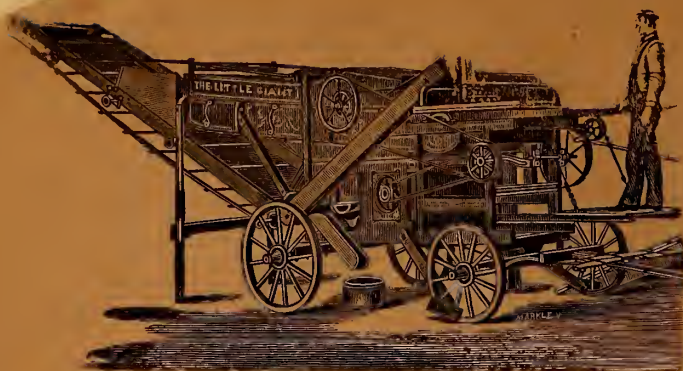
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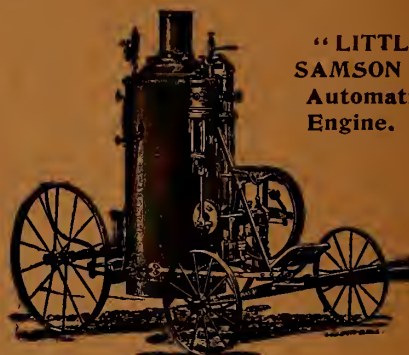
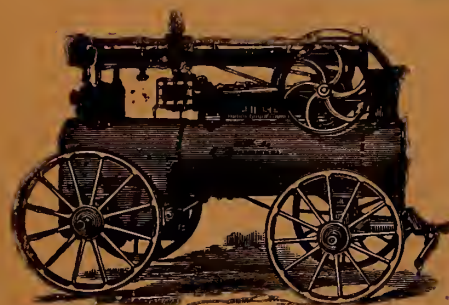
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Agriculture is the nursing mother of the Arts.--XENOPHON.
Tillage and pasturage are the two breasts of the State.--SULLY.

64th Year.

Richmond, December, 1903.

No. 12.

Farm Management.

WORK FOR THE MONTH.

Another year has rolled round to its closing month, and the ingathering of the crops, the result of a year's toil and anxious care, has been practically completed. The year has been in regard to the weather an abnormal one, and the effect is largely seen in the crop returns. Excessive rains throughout nearly the whole South were the characteristic of the spring and early summer months, and had it not been for the fine, open and dry fall which we have had the crop returns would have undoubtedly been most disastrous. The seeding and planting of all crops was delayed, and when got in they were too often planted in badly fitted seed beds, and the working of them was rendered practically impossible upon the river and creek low lands. Wheat, which promised finely in the early spring, was practically rendered a complete failure by the heavy rains at the blooming period. The pollen was washed from the ears, and as a result of imperfect fertilization of the blooms the ears were only very partially filled and the grain was light and trashy. The average yield of wheat in Virginia is placed by the Department of Agriculture at 8 bushels to the acre. In North Carolina, at 5 bushels; in South Carolina, at 6 bushels; in Tennessee, at 7 bushels, and in Maryland, at 12 bushels. Winter and spring oats were also very unsatisfactory crops. The corn crop, however, made some amends for the disappointment in these crops, as it is on the whole a good one, probably on the high lands one of the best ever raised in the South, and, on the whole, compares very favorably with the crop in the rest of the country. The average yield for Virginia, as estimated by the

Department of Agriculture, is placed at 21 bushels per acre against a 10 years average of 19 bushels. In North Carolina the estimated yield is 14 bushels per acre, against a 10 years' average of 13 bushels. In South Carolina the yield is estimated at 10 bushels per acre, against a 10 years' average of 9 bushels. In Maryland the yield is estimated at 28 bushels per acre, as against a 10 years' average of 29 bushels. In Tennessee the yield is estimated at 23 bushels per acre, as against a 10 years' average of 21 bushels. The tobacco crop of Virginia is estimated by the Department at 745 pounds per acre, as against a 10 years' average of 640 pounds. In North Carolina the crop is estimated at 627 pounds to the acre, as against a 10 years' average of 535 pounds. In South Carolina the crop is estimated at 610 pounds to the acre, as against a 4 years' average of 711 pounds. In Maryland the crop is estimated at 650 pounds to the acre, as against a 10 years' average of 633 pounds. In Tennessee the crop is estimated at 700 pounds to the acre, as against a 10 years' average of 642 pounds. The Irish potato crop is above the average, whilst the sweet potato crop is also above the average in all the coast States. The hay crop in all the coast States is above the average, the yield per acre being even in excess of all the Northern and New England States, and comparing very favorably with that of all the Middle States, indeed being in excess of several of the best of these. The cotton crop, whilst not yet fully ascertained, is expected to be about an average in the coast States, with a price for it away above the average. Indeed, this crop alone for lint and seed is expected to bring more than \$500,000,000 into the

Southern States. The market value of all the crops is well maintained, with the exception of tobacco, and whilst the market for this crop opened very flatly, there is already indication that better prices are in prospect. Even with the opening low prices growers should bear in mind that these compare favorably with figures at which the crop was selling a few years ago, and are relatively only low as compared with those of the closing sales of the year before last and the opening sales of last year. We have had planters in our office who have already sold this year at prices ranging from 6 to 10 cents for dark shipping. The season has been a most propitious one for the production of forage crops of all kinds, and there is an abundance of feed for all live stock for the winter, whilst the fine, open fall has kept grazing on the pastures good up to the present writing. No doubt the cost of production of all crops has been higher this year on account of labor scarcity, but we conclude that on the whole Southern farmers may look with satisfaction on the result of their labors, certainly with more satisfaction than can farmers in many of the Northern and Western States. We are beginning in the South to see the results attained by the adoption of a system of "farming" rather than "planting" in the substitution of a system of rotation of crops in which the legumes and other forage crops are brought more frequently into the course, and in which deeper plowing and better cultivation is being practiced. We have been urging these changes for many years, and feel a sense of satisfaction in seeing the results of our labors bearing fruit. We have always been confident that we were advising the right course to bring prosperity to Southern farmers and increased and permanent fertility to the lands of the South, and each year only emphasizes the truth of this and makes us more determined to continue urging rotation of crops, deep plowing and repeated and more perfect cultivation. These and not so much a reliance on purchased fertilizers, coupled with attention to the breeding and keeping of live stock sufficient on every farm to consume all the rough products and forage crops and much of the grain are the true sources from which prosperity must come, and the farmers themselves are now realizing these truths more than ever in the past. We have the climate, we only need to supplement it with a sound system of rotation and justice to the land in the way of breaking and working it to ensure success in production and a better system of utilization of the crops on the farm when produced to ensure profit in the ultimate results.

It is too late in the year now to sow any crop except

Canada peas and oats, and this crop ought only to be sown in December in the Tidewater and central plain of the coast States. Elsewhere in the South it should be sown in January, February and March, according as the section rises in altitude from the sea. In middle and Tidewater Virginia we have known Canada peas and oats to make an excellent yield of forage and grain seeded in December. Much, however, depends on the character of the seed bed. If this be dry and finely worked and a good cover be given to the peas, they will take no harm, even if the weather becomes severe. Canada peas and oats are essentially a cold climate crop, and to be grown successfully in the South want to be got in the ground sufficiently early to make and complete their growth before the hot weather strikes them, otherwise the crop will not be worth the raising. As a green forage crop for hogs, and as a hay crop, it is very valuable as it comes in at a time when feed is usually getting scarce. The peas at the rate of $1\frac{1}{2}$ or 2 bushels to the acre should be planted deep with the drill or be plowed down so as to give them a cover of 4 or 5 inches. The oats, at the rate of $\frac{3}{4}$ or 1 bushel to the acre, should then be sown on the top and be harrowed in. The crop will be ready for grazing by April, and should be cut for hay in May.

So long as the weather keeps open and the land dry enough to plow the teams should be kept at work breaking all land intended to be cropped next year. In doing this work see that the plow is kept as deep in the ground as a strong team can pull it, and that some portion of the subsoil is turned up in addition to the old worked soil. This subsoil contains an abundance of natural plant food, and only requires to be subjected to the influence of the atmosphere long enough to make this available. When turned up in the spring there is not time for this action to be exercised long enough for advantage to be secured, now it can be turned up with safety and ultimate profit. Wherever possible, in addition to the deep turned furrow have the hard subsoil broken with a subsoil plow following the turning plow in each furrow. In this way this subsoil becomes permeable by the atmosphere and capable of holding the rainfall for the subsequent use of the crops and this rainfall will dissolve the plant food therein, which will be taken up by the roots of the crop, which will easily penetrate the loosened soil. Plants of all kinds are solely dependent for their growth on the food in the soil which is held in solution by water. They cannot utilize any of this food in a solid form, hence the importance of conserving the moisture in the soil. In our

last month's issue we pointed out in discussing a recent bulletin of the Department of Agriculture, that as a result of the investigation of the Department, it had been found that all soils capable of cultivation contained nearly the same amount of plant food capable of being dissolved by the soil water, and that this quantity was amply sufficient for the production of maximum crops for years to come if made available. The only means of securing this availability is to make the soil capable of holding sufficient moisture to dissolve the plant food, and this can only be done by deep and perfect cultivation and the filling of the soil with humus, which acts like a sponge in holding the moisture. Now is the time to break the soil and subsoil, and then the humus making crops and manure can be added later. We know that many Southern farmers and some agricultural authorities doubt the advisability of fall and winter plowing in the South, unless the land can also at the same time be seeded with a winter growing crop. They contend that as we have not usually much severe frost to disintegrate the soil, that little benefit is derived from breaking the surface, and that the winter and spring rains will so pack the land as to make necessary reploting in the spring. We cannot agree with this view. Whilst we would plow and seed with winter growing crops as long as possible, yet we would not cease to plow when compelled to cease seeding. Even should the soil become somewhat packed, it will certainly break much more easily either with the plow or the disc or spading harrow in the spring than if left unplowed in the fall, and it will certainly have secured a much better supply of water in the subsoil than can possibly be the case if only plowed in the spring, and this water will have dissolved more of the inert plant food and rendered the same available. One of the great weak points of Southern farming has been, and is, the lack of plowing and finely breaking the soil sufficiently. We plow too many acres and do not plow the individual acres sufficiently. A reversal of this system will result in much greater profit and no more work. Especially would we advise deep plowing and subsoiling now on lands washed and gullied, as we too often find them. This washing and gullyng can only be stopped and the land be made profitable again by deep plowing and subsoiling. The soil washes away because the rainfall cannot get down into the subsoil. Open this and make of it a reservoir to hold the rain, and the washing will cease and the land will produce good crops when once some humus has been got into the soil. After these gullied fields have been plowed and subsoiled, spread any kind of vegetable trash or strawy manure on the surface, and when the soil is

dry enough work it in and then in February or March sow 2 bushels of oats to the acre, and let this growth be lightly grazed or be mowed before the oats head, and the cutting be left as a mulch on the ground. In June turn the growth under and sow cow peas 1 bushel to the acre. Turn these down in August and sow 12 pounds of crimson clover seed and a bushel of oats, rye and wheat mixed in equal parts, to the acre. When this crop comes off in the following year either by grazing or cutting, the galls and gullies will be ended and the land can be cultivated in staple crops or be seeded to grass.

The work of planting the staple crops in the spring can be greatly helped by utilizing the winter months in getting the manure and fertilizer into the land. Barn yard manure can never be put to a better use or be better conserved than to use it as a top dressing on winter growing crops or by applying it in winter to the land to be put into crop in the spring. Get the manure out of the barns, stables and pens as made, whenever the land is fit to haul on. The leachings will then find their way into the soil, where they will be utilized by the crops and not into the creek or river. The solid matter will decompose and rot as well on the land as in the barnyard, though not quite so fast. All the phosphatic and potassic fertilizers, and some of the nitrogenous ones like tankage, can with safety be applied in the winter. The phosphatic and potassic fertilizers require considerable time to become assimilated and dissolved in the soil before crops can derive benefit from them, and there need be no fear of their being lost by leaching. Tankage, cotton seed, and all other organic nitrogenous fertilizers also require time to rot before they can be utilized, but they should not be applied too long before the crop is planted or some of their value may be lost. Nitrate of soda, the most active nitrogenous fertilizer, ought, however, never to be applied before the crop has commenced to grow, as it is as soluble as salt, and the nitrogen is immediately available, and may be quickly lost if there be no crop growing to utilize it. In these various ways the fine, open winters which we experience here ought to be fully utilized, and thus we can be ready to plant our crops as soon as ever the weather is suitable. If we do not thus utilize the winter months we fail to do our duty, and might as well be living in the cold, hard frozen North.

The work of cleaning up new land and old fields that have not been under cultivation and are again intended to be cropped, should be attended to. When-

work of this character is undertaken, let what is done be done thoroughly. Do not leave stumps and rocks in or on the land, but remove them out of the field. Small stumps can be easily pulled out and larger ones should be blown out with dynamite. Left in the ground they only form breeding places for weeds, briars and fungoid diseases, and are the constant source of broken tools and implements and injured horses and mules. Rocks should be gathered off and hauled on the roads of the farm or the adjoining highways, where they can be profitably utilized in making and repairing good, hard, dry, permanent roads. Let all old fences be straightened and repaired, and the necessary new ones be built. Where good old rails are still found in the old fences these can be utilized in the building of new ones and a much greater length of fence be built by combining them with wire. Set the posts at a proper distance to utilize these old rails and then fasten them to the posts by stapling a length of wire to the bottom of the post and carrying it up the post on the one side and down on the other side, making loops at the proper distance apart to hold the ends of the rails in place and stapling the wire to the post above and below each rail. In this way a five or six rail fence can be built for a long distance with the rails taken out of an old worm fence.

Ditches should be opened out and cleaned, and drains be put in where needed. When any draining is to be done see that before starting the work a good plan is prepared and levels be properly taken so that no mistake be made in so placing the drains as to secure sufficient fall for all drains and a good open outlet for the main drain. Do not fail to put the drains down deep into the land. At least 3 feet should be the depth from the surface. The water which does the harm to the land is not that lying on the surface, but the water in the subsoil, which is stagnant and prevents the surface water from getting down. Drain off this stagnant underground water, and that which falls on the surface or finds its way there will soon get down and away out of the land. Fill the drains with the soil and clay taken out, and not with loose stones or rubbish. The tighter they are filled the better they will draw the water out of the subsoil, which is what is needed, and the longer they will continue to be effective. We have packed tile drains tightly with clay from the tile up to the surface and found them to be thoroughly effective for twenty years afterwards. In draining a piece of hilly land, let the drains run directly down the hill and not across or in a diagonal direction. When run

straight down the hill the drain draws water from both sides, whilst a drain run across or diagonally will only drain water from the upper side.

Have the ice pond cleaned out and cut off all sources of impure water flowing into it. The freezing of water does not purify it as many think, and the absolute necessity for using only pure ice is so great in the way of health that no risk should be run of impounding impure water. The ice house should also be thoroughly cleaned out and be put into good repair. In our last issue and in this one will be found articles dealing with the building of ice houses.

Have all implements and tools not in use gathered together and put under cover. Clean them thoroughly, and grease the bright metal parts, and on wet days repair and paint them. A few dollars spent in paint will make tools and implements last years longer. The loss sustained by farmers from the careless way in which their tools and implements are cared for amounts to millions every year, and in itself amounts to a considerable profit on the working of a farm.

See that plenty of seasoned wood is stored in the wood shed, and do not subject the women of the household to the annoyance of having to use wet fuel to cook the meals and keep the home warm.

Have an abundance of feed stored convenient for the stock, so that if short handed at Christmas and New Year, which is very often the case, the stock will not have to suffer.

Don't send all the best of the farm products to the Christmas and New Year markets, but keep an abundant supply for home use, so that all the family and visitors may be able to enjoy a merry Christmas. "Its a poor heart that never rejoices," and no one has a greater right to enjoy the good things of life than the farmer who produces the most of them.

That the New Year may be a happy and prosperous one for all our readers is our heart-felt wish and prayer.

ROTATION OF CROPS.

The subject of the proper rotation of crops on a farm is one that up to the present has received comparatively little attention in this country, and practically none in the South. With the vast areas of un-

occupied land in the country and the large quantity of uncultivated land common on the great plantations of the South, the subject has not pressed for attention. When Uncle Sam could give every farmer a new farm when the old one ceased to return good crops men thought it of no concern to them to learn how to make the old farm permanently profitable, and were content to call their farm a profitable one so long as they could secure from it a good living for themselves and something over and took no stock in the idea that it was a duty they owed to posterity to maintain fertility. They held strongly to the Irishman's theory that posterity had done nothing for them, and therefore they need not concern themselves about posterity. And yet this conception of a profitable farm is a radically wrong one. A truly profitable farm is one which not only provides a good living and something over for the present owner, but also maintains and adds to its fertility for the benefit of those who come after. How few Southern farms answer to this requirement! Now that Uncle Sam has given away all the good farms, and many of his poor ones also, the subject presses for consideration. In the South the question has up to the present been answered by turning out the old cultivated land and taking in and clearing up some of the new land, or in more recent years by turning again to that part of the plantation which had been turned out years ago, and upon which nature has been exercising her beneficent work in recuperating the soil slowly by adding each year to the soil the decaying matter of the natural vegetation, and the pines have been pumping up from the subsoil and making available the mineral plant food naturally existing in the soil. The spread of the system of breaking up the old large plantations into small farms to meet the requirements of an increasing population and the incoming of settlers from the North and West and the Northwest is gradually lessening the opportunities for thus meeting the difficulty of lessened fertility in the old cultivated lands, and forcing the consideration of rotation of crops as a remedy for the evil of one crop production, and consequently sterility of the soil. The example of England and the result of the investigations of the Bureau of Soils shows conclusively that these so-called exhausted old farms are not yet devoid of fertility. Hundreds of years of cultivation of the land in England has not yet deprived its lands of the capacity to produce even greater crops than the virgin soil of this land, and this because for a great part of that time, certainly for the last hundred years, a system of rotation of crops has been positively required by the owners of the lands as a condition of their occupancy.

The recent investigations of the Bureau of Soils prove conclusively that all soils capable of cultivation, whether they have been manured or fertilized or not, contain about the same proportions of plant food soluble in the natural soil moisture, and that in all cases there is of this plant food an abundance for the needs of crops for years to come. The problem, then, is how to secure this and to make farming profitable without having to seek new lands in a country where every day these are getting scarcer. In seeking to solve this problem the Bureau of Soils has come to the conclusion that the most potent factors are more perfect and deeper cultivation of the soil, so as to permit of the holding of more soil moisture, and a judicious rotation of crops. They support these conclusions by numerous examples of exactly similar soil producing in one section good crops and in another poor ones solely as the result in the one case of better plowing and cultivation and in the other of following out the old system of barely breaking the surface. As an illustration of the value of rotation they cite the case of the Rothampstead wheat experiments in England, where, on one field which has grown wheat continuously without manure or fertilizer for fifty years, the yield has been reduced one-half, and where in another and adjoining field wheat has been grown, also without manure or fertilizer, in rotation with other crops only once in four years, and the yield has continued practically the same over the whole period. What has been done can be done, and is being done, in some few places here. Where one or two crops only are grown they are continuously making a call upon the land for the same elements of fertility, and thus exhausting these and unbalancing the fertility of the soil. A balanced plant food ration is as essential as a balanced stock food ration, in securing profitable crops, and profitable feeding. Again, the character of the one or two crops grown is usually such that they are robbers and not recuperators of the soil. They use up the humus in the soil, and thus render it hard and incapable of holding moisture, and they do not secure for it any of the nitrogen so essential for fertility, and which is found in unlimited quantity in the atmosphere. The lack of a system of rotation is also injurious to crop production in that it conduces to the spread of insect and fungoid pests which alone cause the loss of millions of dollars every year to American farmers. Nearly all these pests are dependent for their continuous existence on conditions which provide them with practically the same food, or the same host plants, on the same land each year. Break this continuity and the pests are at once lessened or exterminated. In the

absence of their accustomed food, or host plants, or in the presence of their enemies, which come often upon other crops, they succumb. We have surely said sufficient to show the importance of establishing *now* a system of rotation on every farm. What that rotation should be is purely a local question. In some sections it may be a long one, running over five or even seven years, in others it should be a short one, not exceeding three. In some sections the soil is better adapted naturally to one or two crops, and local market conditions may make these more profitable than others. In some sections a grass sod holds naturally on the soil and keeps in full vigor for several years, whilst in others it will only hold for one or two years and then become infested with weeds or become so thin on the ground as not to yield profitable crops. All these and many other considerations must be borne in mind when deciding upon a rotation. The one thing of importance to decide is that no field shall grow two grain crops of the like character in two succeeding years. As far as possible determine that an exhausting crop shall always be succeeded by a recuperating crop. In a section where red clover does well, let this be one of the crops to come on the land at least once in each rotation, and in the South this can usually be more than accomplished, for here we can grow a red clover crop in the summer and a crimson clover crop in the winter. Where clover does not succeed well, then let cow peas, soy beans and vetches take the place of the red clover. These are all recuperating crops. They take nitrogen from the atmosphere and fix it in the soil for the benefit of the succeeding crops. We have known a crimson clover crop to increase the yield of a corn crop 25 bushels to the acre, and a cow pea crop to increase a wheat crop 10 bushels to the acre. The vetch crop is even more successful in fixing nitrogen than the cow pea. In an experiment made at Cornell Experiment Station, N. Y., it was found that a crop of hairy vetch had secured 256 pounds to the acre, as against an average of 52 pounds secured by cow peas in the section where they are most successfully grown. In the central and coast plain of the Southern States, where a grass sod does not usually hold well to the soil a three or four years' rotation is, in our opinion, the one likeliest to be adopted with success, whilst in the Piedmont sections and further West a five or six years' course will be best and most profitable. Whatever length of time is decided upon, never wait so long to break up a grass sod as to allow it practically to die out. Not only will it in such a case be an unprofitable field for either a hay meadow or a pasture in the last year or two, but it will cause the loss of the vegetable matter of the

grass and the roots which it is always an important matter to consider, as these tend so largely to add to the humus in the soil. Break a sod always when it is beginning to fail, and not when it has failed. Put the coarse manure of the barnyard on the sod in the fall and break for corn. A clover sod should in like manner be utilized by breaking it for wheat. It will supply the nitrogen needed by the crop, and thus make the cost of production much less and the certainty of a good yield greater. By watching these chances of securing help to succeeding crops much economy in production can be secured, and at the same time the fertility of the land not be impaired, but be enhanced.

PLANT FOOD AND CROP PRODUCTION.

In our last issue we discussed at some length a part of the bulletin issued by the Bureau of Soils of the Department of Agriculture, which, as we then stated, we regard as one of the most valuable contributions to the science of crop production ever issued. We propose now to take up other points in the bulletin. As pointed out in our last article, the texture of the soil influences the climate of the soil in that it affects the water supply and the temperature under which the crop is produced. The actual distribution of the water which falls, and the supply of water to the crop, is regulated almost entirely by the physical characteristics of the soil. So far as the necessary water supply of crops is concerned, therefore the crop is not dependent directly upon the rainfall, but upon the daily and hourly supply which can be delivered by the soil to the roots of the plants, whether the ultimate source of supply is from rainfall irrigation or seepage. The influence of the texture of the soil upon the yield of crops is strikingly shown in the cropping of the light sandy soils of the Atlantic coast, which, because of the light yield of corn and wheat, are used almost exclusively for truck crops, and in the use of the Hagerstown loam and clay of the Lancaster area of Pennsylvania, the valley of Virginia and the blue grass region of Kentucky and Tennessee in producing hay and grain. For the same reason the Miami black clay loam of Ohio and Illinois is used for corn, the sandy soils of Virginia for bright, yellow tobacco, and the clay soils of the same State for the heavy manufacturing and export tobacco. The investigations of the Bureau indicate approximately the same amount, and the same proportions, of plant food per unit of soil solution in these different types of soil. The physical properties, however, are very different. The Miami clay loam maintains usually from 25 to

30 per cent. of water. The Norfolk sand maintains usually only about 6 per cent. of water. The Miami clay, with good methods of cultivation, yields 60 or 80 bushels of corn to the acre. Experiments have shown that every pound of dry matter in the corn crop requires about 300 or 400 pounds of water to make it. The corn plant would presumably require as much water per pound whether grown on the Norfolk sand or on the Miami clay, but because it cannot obtain this in the Norfolk sand the crop there only makes from 8 to 10 bushels to the acre. *The amount of soluble plant food in both soils is practically the same. The water holding capacity of the soil and its power to deliver this to the plant is the cause of the difference in yield, and this water holding power is affected largely by the texture of the soil and its physical conditions as controlled by cultivation.* Another influence controlling the yield of crops is rotation. This is well illustrated by the Rothampstead wheat experiments. There the yield of wheat grown continuously without manure or fertilizer for fifty years has been reduced from $33\frac{1}{2}$ bushels to 15 bushels. Where wheat has been rotated with roots, barley, clover, beans or fallow, the wheat being sown every fourth year for forty-four years without the addition of manure or fertilizer, the yield of wheat has not been sensibly reduced. The yield of wheat even where the roots were carted off and the land left in fallow being $33\frac{1}{2}$ bushels in 1883, as against $30\frac{1}{2}$ bushels in 1857, and 35 bushels in 1859. The yield of wheat in this same experiment on land where mixed mineral and nitrogenous manures and fertilizers has been used in some part of the rotation has not been sensibly larger. *In this case, then, by a simple rotation and change of cultural methods from year to year with the change of crop the yield of wheat has been maintained practically constant for forty-four years, whereas the yield of wheat under continuous culture has fallen one-half in the same time.* This decrease can be ascribed only to some physical change in the soil, to some chemical change other than the actual loss of plant food, or possibly to the accumulation of disease germs, insects, etc., which it is known frequently occurs where rotation is not practiced. Another influence affecting the yield of a crop is the variety of seed used. Just why this should influence the yield has never been determined. It is due unquestionably to other factors in plant growth, possibly to seasonal changes, conditions of cultivation, or other influences of which we know nothing. It may be that the great variation in the yield from different varieties of seed are really due to the condition of the preceding crop or the vitality and state of maturity of the

seed, but so far as known the differences are due to the kind of seed used as influenced by the condition of the soil and climate.

In further discussion of the part played by commercial fertilizers in the yield of crops, the authors of the bulletin say: "If the generalizations contained in the bulletin to the effect that the soil moisture has sensibly the same composition in different types of soil and in soil under good and poor methods of cultivation, and that there is more of these fertilizing ingredients in all soils than the plant actually needs be sustained, it may well be that the role of fertilizers requires other explanations than those now generally accepted." The fundamental idea in the use of commercial fertilizers has been that of supplying plant food in an available form. It is significant that other conditions of growth have so much influence on the yield that in but very few instances, even after long continued experiment, has it been demonstrated that any particular fertilizing ingredient or ingredients are required for any particular soil, and that even then the effect of the fertilizer varies so greatly from year to year that no specific law has been worked out from which the fertilizing requirements could be deduced. *It is a fact admitting of no argument that fertilizers rarely take the place of efficient methods of cultivation and of cropping in increasing or maintaining crop yields.* With the present methods of cultivation the difference between the yield of 8 bushels of wheat per acre on the Cecil clay in North Carolina and 25 to 30 bushels per acre on the same soil in Maryland cannot be adjusted by the application of any kind or any amount of fertilizers to the North Carolina soil. The idea now held by the Bureau of Soils as a result of the investigation is that the ratio of the nutrient elements (plant food) in normal soils does not play a very important part in the yield of crops, or, to be more explicit, *low yields are usually related to the physical condition and characteristics of the soil.* The conclusions drawn by the authors of the bulletin from a consideration of all the data of the experiments made, is that plants can and do yield ordinary crops though growing in soils containing very small traces of all the plant foods, while if the amount of these plant foods is increased a thousand times, as in the case of the alkali soils of the West, where potash, lime, phosphoric acid and nitrates are frequently found in very large amounts, they are unable to give corresponding increases in the yield. On the contrary, the yield from these arid soils under irrigation is no greater than that obtained from the soils of the humid regions which contain far less of these mineral plant foods, provided the season in the

humid region is just right, or that irrigation be practiced. The exhaustive investigation of many types of soil by very accurate methods of analysis under many conditions of cultivation, and of cropping in areas yielding large crops, and in adjoining areas yielding small crops, has shown that there is no obvious relation between the amount of the several nutritive elements in the soil and the yield of the crops—that is to say, that no essential chemical difference has been found between the solution produced in a soil yielding a large crop of wheat and that in a soil of the same character in adjoining fields giving much smaller yields. The conclusion logically follows *that on the average farm the great controlling factor in the yield of crops is not the amount of plant food in the soil, but is a physical factor the exact nature of which is yet to be determined.* It is not to be deduced from this that fertilizers do not frequently increase the yield of crops, but whether this increase is due to an actual increase of the plant food in the soil, to an early stimulation of the plant to enable it to get its roots out into a sufficient volume of soil, or to some physiological or physical effect, is not altogether clear. The results of these investigations also seem to indicate that the actual quantity of water a soil can furnish the plant, irrespective of the percentage of water actually present in the soil has probably a very important influence on the yield. *The conclusion seems justified, that although differences in the dissolved salt content (plant food) or in the concentration and composition of the soil moisture may be a factor in the yield as well as quality of a crop, it does not appear to be a major one in determining or controlling the wide variations observed in crop yields on different soils. It appears further that practically all soils contain sufficient plant food for good crop yields, that this supply will be indefinitely maintained, and that this actual yield of plants adapted to the soil depends mainly under favorable climatic conditions upon the cultural methods and suitable crop rotation—a conclusion strictly in accord with the experience of good farm practice in all countries.*

TALL CORN.

In a recent issue, replying to a correspondent who asked whether it was not possible to secure a shorter growing corn in the South by using Northern seed, we replied that there was no means known to us of preventing corn from becoming much taller in the South than in the North and West, and that if Northern seed was used it would at once commence to grow tall,

and in two or three years would become as tall as that grown from Southern seed. This reply was founded on practical experience. We have known the experiment tried and it resulted as we state. Our long growing season and a climate specially congenial to the corn plant, causes this. The Editor of the Practical Farmer (Prof. Massey), in a recent issue of that paper, takes partial issue with us on this subject, and contends that with care in selection of the seed for a number of years much may be done to correct this apparently natural tendency of the corn plant here, and that we can get rid of the very tall stalks with only one ear growing near the top. Whilst experiments made in the West go to show that a great increase can be made in the yield by selection and careful breeding of corn for a series of years, yet we doubt much whether this will largely affect the height to which the stalks will grow in this Southern climate. Prof. Massey suggests Cocke's Prolific as the variety to use in endeavoring to correct the tall growing habit. Whilst we agree with Prof. Massey in the advisability of selecting Cocke's Prolific as the variety to use for experimenting, yet this agreement is not based on the idea that its use would result in a shorter corn, but rather that it would result in a greater yielding corn. Cocke's Prolific is one of the tallest growing corns we know, and one which takes the longest time to complete its growth. In this respect it is well adapted to our climatic conditions. It originated in the James River Valley west of Richmond, and has been there bred to great perfection. The greatest corn yield ever made in the State, 160 bushels to the acre, was made by Cocke's Prolific grown near by Bellmead, where the variety originated. The grower of this crop, Mr. H. E. Wood, sent us a large bundle of the stalks of this crop to let us see the character of the same. These stalks ran all the way from 14 to 18 feet tall. The peculiarity, however, and this is characteristic of the variety and what makes it so valuable, was in the number of ears on the stalks. On the tallest stalk sent us there were 11 ears of corn, and none of the stalks had less than four ears on them. The average number of ears on a stalk throughout the crop was not less than two, and a very large proportion had three good ears. Now, with such a production of ears possible, we see no reason why we should desire a shorter stalk. If, in addition to producing from two to three ears on the stalk, we can also get the great increase of fodder, which a tall stalk gives, we surely need not seek to alter the habit of the variety. One thing is perfectly certain, that without a tall stalk and a great leafage on the stalk we can never secure a variety that will also give a great num-

ber of ears, for the seed bearing possibility of all plants is largely controlled by luxuriance of growth. Without the stalk and leaves to elaborate the sap and juices of the plant and convert them by nature's methods largely into seed vessels and seed no great yield of seed or fruit can be looked for from any plant. A healthy and luxuriant foliage on any plant is a *sine qua non* for successful seed and fruit bearing and in this respect corn is no exception. We quite agree with Prof. Massey that it is desirable to get rid as far as possible of the tall growing corn so common in the South, each stalk carrying only at most one ear, and many not an ear at all, and believe that this is quite possible by following his suggestions as to selection of seed, but we see no reason why we should desire to get rid of tall growing corn carrying at least two ears on each stalk. The heavier the growth we can get on an acre of land and the more profit we can get out of it if we only utilize that growth as we ought to do, and especially is this true of corn where analysis shows that nearly one-half of the nutritive feed value of the crop is in the stalk and fodder.

SMALL FARMS WELL TILLED.

Editor Southern Planter:

I strongly and persistently advocate the "small farm well tilled." A few years ago a German-American correspondent of ours came to Norfolk with his wife and three small children. The mother was in the last stages of consumption and lived only a year after reaching this seaport.

After paying the expenses, incident to the death and burial of his wife, he found himself three dollars in debt. His assets comprised a few articles of household goods, and three small children and not a dollar in his pockets. On the contrary he owed three dollars when he began working for one of our market gardeners.

He soon began, however, to work for himself in a small way. Now after a few years he is getting on his feet and is considering the purchase of a good farm of his own. Having accumulated considerable money and learned all about the trucking business, he is now in a position to buy.

At my suggestion he has been keeping close account of a little field or piece of his market garden. He selected a plat, which, by measurement, contained a little less than one-third of an acre of land.

On the 15th of September, 1902, he sowed it to spinach, which he marketed in January, 1903; selling fifty barrels at one dollar and fifty cents per barrel;

and twenty-one barrels at two dollars per barrel. His expense account with the one-third acre was as follows: Cost of barrels, thirteen dollars and eighty-one cents; cost to cut spinach, four dollars and ninety-seven cents; cost of fertilizer, six dollars and fifty cents; freight to New York, ten dollars and sixty-five cents; commission for selling in New York, nine dollars and thirty-six cents; seed, forty cents.

By adding these items of expense together, and deducting the same from the gross sales, one will see that the spinach crop netted him seventy-one dollars and thirty cents from the one-third acre, clear of all expense.

The last days in February or first week in March he set out lettuce on this one-third acre, and in April, 1903, sold one hundred and thirty-five baskets of lettuce, at two dollars per basket, or two hundred and seventy dollars. His expense on the lettuce crop was: Baskets, nine dollars and forty-five cents; freight, eighteen dollars and ninety cents; commission for selling, twenty-one dollars and sixty cents; fertilizer, five dollars; labor, seventy-five cents; leaving two hundred and fourteen dollars and forty cents net profit after deducting all expenses.

Before the lettuce was sold, in April, he planted snap beans between the rows; but the crop was not a success, yet he realized a little over ten dollars clear profit from the beans. We here see a clear net profit of two hundred and ninety-four dollars and sixty-one cents from less than one-third of an acre, inside of nine months: from the 15th September, 1902, to 15th of June, 1903. These nine months included the winter months, and there were three growing months left in the year yet—from June 15th around to September 15th, in which our friend could have grown another crop, and thus made his net cash profit, on one-third acre, in one year's time, more than three hundred dollars.

Now in this case, this man had no great capital, and made no special or great effort, and could, in all probability, do even better next time.

Had he been able to have retailed his produce here at home, direct to the consumer, he could have made much greater profit; but he sent every package of his produce to commission men in New York to sell for him, and still made, as stated, two hundred and ninety-four dollars and sixty-one cents, from one-third of an acre, in nine months time.

Of course all can not do as this poor but thrifty farmer did; simply or mainly because they do not have the climate, soil and markets to aid them; but there are several hundred thousand acres of land in Eastern Virginia, which, if carefully and thoroughly

cultivated, and the produce harvested and marketed in a businesslike manner, would yield a net cash return; which would astonish the Western wheat and corn grower.

I plead earnestly for intensive farming. Give us good thorough intensive farmers and farming in Eastern Virginia for a few years, and we will show you extensive and very satisfactory results.

If one is near to a good local market, or has a cheap freight rate to reach a half million consumers, let him put in a five acre garden; and, after his family is supplied, ship the balance, and see if the five acres in garden crops do not return more clear profit than forty acres in corn or wheat.

Do not try to cover too much land, but cover it well. This should be the aim of every tiller of the soil; especially of every one who lives in this mild and middle latitude, near-the-sea, which insures an equable climate, a liberal well distributed rainfall, cheap transportation, and easy access to ten million consumers.

If Eastern Virginia is once thoroughly and intensively tilled it will be able to furnish "garden sass" for more than fifty million consumers.

Norfolk county.

A. JEFFERS.

ENQUIRERS' COLUMN.

Enquiries should be sent to the office of *The Southern Planter*, Richmond, Va., not later than the 15th of the month for replies to appear in the next month's issue.

Cotton Seed Hulls, Corn Shucks, English Peas, Irish Potato Planting in December, Wood Ashes, Manure.

1. Are cotton seed hulls at 50 cents per hundred valuable for feeding milch cows?

2. Are corn husks fed alone as good for milch cows as the stalk fodder?

3. Which is better to plant English peas in December or February for early crop?

4. Should potatoes planted in December be cut or be planted whole?

5. Are pure dogwood ashes worth 10 cents per bushel for a fertilizer for garden truck and what kind of truck are they best for?

6. Should manure put on plowed ground this fall be scattered and harrowed in?

7. Will it pay me to haul manure for one mile at 30 cents for a one-horse load that has sawdust in it?

J. L. BRITTON.

Mecklenburg county, Va.

1. The digestible nutrients in cotton seed hulls are

less than are contained in oat straw. The protein and carbo-hydrates are less, the fat a little more. For feed therefore they are only worth the price of straw.

2. There is very little difference in the digestible nutrients in shucks and stalk fodder. As feed they are about of equal value.

3. In your section we would plant the English peas in December if we could get them in on well prepared land and a nice seed bed not too wet. February is often a wet month and one in which it is difficult to get a good seed bed. If the ground is, however, in nice order they will do well sown in February.

4. We would plant the sets whole in December.

5. We cannot find an analysis of dogwood ashes but presume they will be about as rich in potash as other hard woods. This varies from 4 to 5 per cent. in unleached ashes. This potash is worth about 4 cents per pound, say 16 to 20 cents per hundred pounds of ashes. The other main constituent of the ashes is lime, which has, of course, some value, but not much should be added to the price of potash for this. Ashes are valuable to use on all the potash loving crops like Irish potatoes and cabbages and also for fruit trees.

6. Scatter the manure at once but there is no immediate necessity to harrow it in. This can be done when preparing the land for the crop.

7. If the stock making the manure is well fed stock it should pay to haul it that distance and pay 30 cents per load for it though we should prefer to have it without the sawdust. There is no value in the sawdust except in so far as it may help to lighten a piece of heavy land.—ED.

Corn on Wire Grass Land,

Please publish the best way to work corn on sandy wire grass land. . . A. T. BROOKE.

Essex county, Va.

Corn and wire grass will not grow successfully together. Land infested with wire grass should be cleared of this before planting in corn. The way to clear it is to shade it densely. This may be done with a crop of peas or with corn planted thickly for fodder or with sorghum planted for a forage crop. Peas are the best as they will improve the land at the same time as they are killing out the grass. The peas should have a good dressing of acid phosphate given them, say 300 or 400 pounds to the acre, to insure a heavy crop. Wire grass must have sun or it will not grow. We once saw a field with one of the heaviest wire grass sods on it cleaned almost entirely of it in one year with a heavy crop of corn grown for fodder. The

year following only a small patch here and there where the corn had been thin made an attempt to grow and these were dug out and a perfectly clean field was the result. It then grew a fine crop of corn. If the land is not rich give the corn some acid phosphate, say 300 or 400 pounds to the acre, to ensure a good growth. It is folly to try to grow corn for the grain and wire grass together. It cannot be done. The wire grass will beat the corn every time.—ED.

Farm Management.

About six years ago I took charge of this place, which belongs to a gentleman from New York. He has been coming here about four months in the year, but now his boys are going to school and he will not be able to come down for so long and consequently asks me to reduce expenses. When I took charge of this place it was like many places in the South, run down by continually planting corn. I have brought it up with the help of your valuable paper to bring about 5 to 6 barrels of corn to the acre where it brought 2 to 3 before. I have also raised all the hay to keep six head of cattle and four of horses, and will be able to sell 10 to 12 tons of hay in addition. How can 60 acres of land be made to pay when I have to drive five miles to a depot and 25 miles to the nearest town and with no opportunity to get a separator if I should raise grain. Would it pay to buy a separator and reaper?

What are the rules in taking a farm on shares?

Stafford county, Va. A SUBSCRIBER.

We do not think that you would do wisely to buy a separator and reaper for such a crop of small grain as you could raise on a 60 acre farm after setting apart the land you would put in corn, hay and pasture. It would seem to us that the best course for you to follow would be to make the place into a dairy farm. You are on the main line to Washington City and not too far from it to ship your dairy products there, where there is an unlimited market for these products when made of fine quality. Make butter or ship cream and use the skim milk to raise calves and hogs for veal and pork. Mr. Sandy, whose farm we described in the last issue, is much further from this market than you are from Washington and he has made a success by the adoption of this course.

The terms of renting on shares vary in different sections. Here it is the custom very generally to pay one-third but often other arrangements are made, dependent upon the help given by the owner of the farm in developing and improving it.—ED.

Barren Corn Stalks,

Last year I planted a field of peanuts on which I

used acid phosphate, after digging the peas I sowed the land in rye for a fallow. This spring I plowed the rye under, planted the field in corn, which grew large, healthy looking stalks, but not more than two-thirds of the stalks eared. Can you tell me why the stalks failed to ear?

J. ROPER JOHNSON.

Dinwiddie county, Va.

A prolific source of so many barren stalks of corn in our corn fields is the permitting of these barren stalks to tassel and pollenize the other corn. Every barren stalk should be cut out before it tassels or the tassel be cut off before it opens. There can be no doubt but that the principle of "like producing like" obtains in the vegetable kingdom as well as in the animal. A great addition could be made to our corn crop every year if only the practise of cutting out barren stalks was carefully followed every year all over the State.—ED.

White Pine,

Will you kindly tell me through THE PLANTER, something about the pruning and care of white pines?

Here, in exhausted and worn out fields the pine grows luxuriantly and were it not for knots, makes a beautiful and useful lumber. They come from seed only, and often a thousand will cluster about a single parent tree. Can we not prune these young pines and grow a forest, free from limbs and knots? What season is most favorable for this work?

One dead pine infested with a certain worm sometimes proves disastrous to the entire surroundings and I am told that it is only at certain seasons that cutting or pruning endangers the pine. Any information will be appreciated.

RUFUS T. COX.

Carroll county, Va.

We referred the foregoing enquiry to the Forestry Bureau of the Department of Agriculture and have been favored with the following reply:

Replying to your letter of November 12, which has been referred to me for attention, I beg to say that the only recent literature available in regard to the care of planted white pine is contained in an article published in Forestry and Irrigation in July, 1902. By applying to Mr. H. M. Suter, Editor, Atlantic Building, Washington, D. C., you can secure a copy of this journal. Excellent illustrations point out the various advantages of artificial trimming and other treatment for such planted groves.

As a rule white pine and other eastern conifers can be safely pruned from March to April inclusive. This spring pruning is advisable since shortly afterward the spring growth of wood begins and if the pruning is properly done the wounds are likely to be healed over that season.

The Bureau of Forestry will shortly publish an exhaustive bulletin embodying the results of a careful study of planted white pine. In this report will be included a chapter on the insect which has become so destructive of this species in planted groves. So far as we know now the insect does not enter the tree through wounds made by trimming. It appears to attack the tender leader and other similar portions of the tree. As soon as this bulletin becomes available, you will receive a copy of it and we believe its contents will be of great interest to your readers.

Very truly yours,

GEO. B. SUDWORTH, *Chief.*

Broomsedge—Red Jersey Hogs,

Would like to get some practical plan to eradicate broomsedge. It takes all vacant land here from newly cleared new ground to old fields. I have pasture sod of different grasses—sowed two and three years ago—good rich, fresh land, too, that is rapidly succumbing to the broomsedge. Nothing but cultivation will check it. One does not feel like buying expensive grass seeds and building fences for pastures when one has nothing but broomsedge in the pasture in a short time.

A friend in Iowa has sent me a pair of Red Jersey pigs. Neighbors wish me to keep for breeders, but I am partial to Berkshire or Poland Chinas. Are the Jerseys considered a good breed? What are their general characteristics?

H. D. LINDSAY.

Surry county, N. C.

If you could only persuade your neighbours to join with you in getting rid of broomsedge you would soon be rid of it as it only comes from seed and this is easily prevented coming on the plants on your own land by running the mower over the pastures before the seed ripens. The difficulty is that your neighbors allow their broomsedge to seed and then this seed, like thistle seed, flies all over the country and seeds itself on every man's land. If, however, you get a good sod on your land of the better grasses this will largely prevent the broomsedge from getting hold. We know of no way to eradicate it but cultivation, though close pasturing will tend largely to prevent it spreading and becoming troublesome.

3. The Red Jersey hogs are very popular out in the West. It is claimed that they make a better bacon hog than the Poland Chinas or than the Berkshires when corn fed. They make more lean meat. There is a much larger demand for them in the East now than there was a few years ago. One breeder who advertises them with us says that he cannot supply the demand he has for pigs, although he keeps a number of sows. Give them a trial. They should do well

with you, though like you, we think nothing can beat a Berkshire for an all-round useful hog.—Ed.

Keeping Sausage Meat,

We have had a great number of replies to "An Enquirer" as to keeping sausage meat, etc. We select the following from those sent in as being sufficient to meet the request:

Replying to "An Enquirer" in the November issue of THE PLANTER: Have your sausage meat clean without washing—water left in it causes mould—season, then mill it, and at once, while soft from the mill, pack closely, leaving no crevices or air pockets. Pack in stone vessels, if for winter use—pack smoothly and evenly full, and paste over the top a skin from the side or leaf fat, having first dipped the skin in warm water and stretched it until soft and elastic; or if the skins are not at hand, leave a space for an inch of warm lard to be poured over your sausage, which also makes it air-tight.

To keep through the summer you must pack in small sacks and hang up to cure and dry, the same as your hams. I use new, rather thin brown cotton, 10 inches long, 12 or 14 inches in circumference when full. Then paste tightly around each roll, over the cotton sack, a skin from the side lard, treated as above. This prevents too great evaporation, whereby much of the outside would be hard and unfit for use.

The bladders from your porkers well cleaned, turned inside out, and blown up to their full size, keep sausage perfectly. Pack tight, tie the mouth and hang up to cure. Then in February or by March 1st drop them in thick strong cotton sacks, to keep off insects, and hang high until wanted for use.

This same thick cotton—a heavy closely woven unbleached domestic, will keep insects from your hams. Trim the hams smooth so the sack will fit without air spaces, sew them on with close stitches, leaving no holes, sew a loop to one end, hang high and dry, before the 1st of March.

For twenty years,

Russell County, Va.

A READER.

Replying to Enquirer in last issue about keeping sausage: The only successful plan we have ever pursued is to put sausage up in the casing, then hang up. Smoke it several weeks until thoroughly cured, and then put away in sacks or in a dark cool place. It can be kept indefinitely this way and is really more delicious than when fresh. By "casing" I mean the small intestines which, of course, have to be thoroughly scraped and cleaned. This requires much care and some experience but is well worth the trouble. An

ordinary grinder, with stuffer attached, is all that is necessary. Care should be used in stuffing to not tear the casing and also use a needle to puncture the air accumulations.

H. D. LINDSAY.

Surry County, Va.

"An Enquirer" from Pittsylvania county, Va., wants to know a method of keeping sausage fresh until spring. Make a sack of the best and closely woven cotton goods, three inches wide when smoothed out (i. e., cloth over six inches before doubling and sewing) about thirty inches or more long to suit taste and cloth; soak well in strong brine, stuff the sausage into the sack with an Enterprise stuffer, stuff so tight that the lard will come through the cloth and look like frost. Tie the end close to the sausage and hang in a dry cold place.

A FRIEND.

Wythe County, Va.

In answer to the enquiry as to keeping sausage I send a receipt which I use and find the meat keeps perfectly as long as required.

To 20 pounds of sausage meat add 6 tablespoonsful of salt, 3 tablespoonsful pepper, and 1 tablespoon of red pepper if preferred. Mix *thoroughly* and pack well in stone jars and cover with hot lard, about one inch deep. Keep in a cool place.

I generally pack in one gallon jars, as after they are once opened the meat will not keep long exposed to the air.

MRS. DR. HALSEY.

Fauquier County, Va.

I grind nice lean fresh hog meat in the sausage mill. To every eight pounds of this ground meat I use 5 tablespoons of salt, 4 tablespoons of sage, 2 tablespoons of black pepper, $\frac{3}{4}$ tablespoon of cayenne pepper. I mix this thoroughly and grind the second time in sausage mill.

The day after grinding it I make it into cakes and fry it as for eating. I pack these cakes in stone jars without crowding, leaving about an inch at the top. The next day I melt lard and pour over it, completely covering the sausage. This will keep all the year perfectly fresh.

MRS. SLADE.

To keep sausage fresh for spring and summer use, prepare it as for table use, that is, make it in small cakes and fry it nicely in plenty of fresh lard. Put the cakes as fried into crocks and each time pour the lard over the sausage that you fried it in, and when your crocks are packed full of sausage, let stand till cold, then if any of the sausage is not covered with the lard, put cold lard enough to thoroughly cover. Then tie a cloth over crocks and put a wooden lid on, and set

aside to use in spring and summer. Sausage put up in this way will keep fresh till September following.

Greene County, Tenn.

L. E. OTTINGER.

Curing Hams,

For the benefit of "Enquirer," Pittsylvania county, Va., I give recipe for curing hams.

Salt down the pork for about two weeks, take up and resalt, with one teaspoonful of saltpetre to each ham, and three pounds of brown sugar to each hundred pounds; pack down for two weeks more; take up and wash hams in warm water and put them in clean sacks of coarse, white cloth, which have been steeped in a solution of lime; hang and smoke for about three weeks, and they can then be left hanging the entire season. I can assure you no insects will molest them if thus prepared.

GEO. H. C. WILLIAMS.

Washington, D. C.

Cotton Opening—Draining Land—Feeding Pumpkins.

I would like to ask your advice, or opinion concerning cotton bolls on heavy river land caught by the recent frost, as to whether you think they will open. I have noticed by opening some of the hard bolls, that while the lint is dry the seed are not wholly made, being very soft. I have over fifty acres of such land in cotton and have only picked out 14 bales, while the stalks are in most parts yet covered with bolls.

2. Please give best idea of draining land, where it is perfectly flat, and inclosed by dykes. Would you suggest making a basin and using "centrifugal pumps," and forcing the water over the dykes; if so, what size pump? And the cost of said pump? There is in this tract of land about 450 acres.

3. Is there any truth in the saying that feeding milch cows on pumpkins will cause them to go dry?

Kershaw county, S. C.

B. H. BAUM.

1. If the weather keeps dry it is probable that a considerable proportion of the bolls will yet open.

2. The problem of draining such a flat as you describe is one for an hydraulic engineer. We have known one such flat on the James river drained by the use of a pump run by a windmill. In England in the Fen district syphons are largely used for this purpose. We would suggest that you write The Sydnor Pump and Well Company, of this city, on the subject. They have had experience with such problems.—ED.

Cabbage Growing—Canada Peas.

1. In the October number you advise sowing phosphate on cabbage this fall. Would you broadcast this or put it in drill?

2. What do you think of drilling stable manure along the cabbage rows after they are set? Would this be as good as commercial fertilizer?

3. I also have a piece of land I intend to set cabbage in next spring. Would you plow this land this fall or let lie until next spring? If plowed this fall would it be a good plan to sow rye or leave it bare all winter? I expect to manure it over this winter with stable manure and it will have to be plowed some time in March.

4. Would you sow Canada peas before or after Christmas? Would like to sow oats with them.

HENRICO SUBSCRIBER.

1. If you apply more than 500 pounds to the acre put it on broadcast. If less than this amount apply in the drill mixing it well with the soil.

2. We would prefer to apply the manure in the drill covering it before setting the plants. If, however, it is not convenient to do this from the fact of the manure not then being available then a top dressing later would no doubt help them. If plenty of manure is available you can do without commercial fertilizer, but as cabbages call for a large quantity of potash and phosphoric acid, in which elements farm yard manure is always lacking, a dressing of these two plant foods along with the manure will be an advantage.

3. We would plow the land now but it is too late to sow rye to get much growth from it before time to set the cabbages in the spring. Apply the manure on the plowed land and then cross plow to cover the manure or work in with the cultivator.

4. In this issue you will find advice as to sowing Canada peas and oats.—ED.

Protecting Cabbage Plants—Manuring for Cabbages.

1. Would it be well to cover cabbage plants with hay or straw laid on the plants or to put poles over them and lay the hay on the top of the poles?

2. Is it better to put manure for cabbages on broadcast or apply it in the drill? W. W. WEBSTER.

Dinwiddie county, Va.

1. A very slight protection is usually sufficient for cabbage plants in this section. Pine branches placed around the bed and in the bed amongst the plants is usually sufficient. If the weather comes very severe some hay spread lightly over the branches would afford ample protection. Do not put the hay directly on the plants as it would lay too close and cause them to rot.

2. This depends on the quantity to be used. If a heavy dressing is available, sufficient to cover the whole plot thickly, apply broadcast. If the quantity is

smaller than is sufficient for this purpose apply in the drill.—ED.

Stencil Ink.

Will you give me through your columns a good receipt for making stencil ink to use with a brush for brass stencils, something that will stand weather and not rub? Is it possible to make a white stencil ink?

X. Y. Z.

We regret that we are unable to comply with this request. We know nothing of making inks. Inks of every color for stencils can be had from The Southern Stamp and Stationery Company, Richmond, Va.—ED.

Drain Tiles.

Will you let me know the address of some one from whom I could get drain tile? I would rather deal directly with the manufacturer.

JAS. T. GARROW.

Warwick Co., Va.

The Powhatan Clay Manufacturing Company, Richmond, Va., make drain tiles.—ED.

APPLES WANTED ABROAD.

Some time ago we called attention to the short apple crop of Europe, suggesting that there would be a good outlet for American apples on the other side this fall and winter. Late advices have shown that this view was correct. Shipments of apples have been very heavy of late, but the demand for them is so large that prices are well maintained. At Hamburg last week American apples brought from \$2.66 to \$5.56 per barrel, choice Kings topping the list. At London the range was from \$2.14 to \$4.84, with prime Greenings at the top; and at Liverpool from \$2.42 to \$5.20, Albermarle pippins at the outside price. With such a foreign market and a crop not any too large apple growers should realize good returns from the orchards which have produced fruit this year.

An old broom is useful in the stable to clean the thickest mud from the horses' legs. Finish up with a coarse cloth or a handful of clean straw.

When corresponding with advertisers, kindly mention the *Southern Planter*.

Trucking, Garden and Orchard.

WORK FOR THE MONTH.

The planting of cabbage and lettuce crops in the trucking sections of the State has proceeded with very little interruption from bad weather and the plants set out have been able to make a start quite sufficient for the time of the year. This work may still proceed until we have severe weather but provision should be made for protecting the lettuce plants in case of severe weather by mulching and by shading with pine boughs on the north and east sides of the beds. Young lettuce plants intended for setting out in early spring should also have protection given in case of hard weather, but so long as the weather keeps mild leave them exposed, as protecting them in such weather only makes them more susceptible to the hard weather. Lettuce set out in cold frames should have the lights off during the day in all mild weather. They require all the air possible until cold weather sets in. When really severe weather may be expected mats or straw should be kept handy to put over the lights. As the plants are cut for the table or for market new plants should be set out in the places thus keeping the beds full.

The pruning and cleaning up of the orchard and small fruit plantations should receive attention. Burn all prunings and trash and thus destroy insects and fungoid spores.

Strawberries may still be set out though it is questionable whether it is not better to defer planting until spring when the work has been so long delayed. Wherever plants are now set out they should be mulched with pine tags or short straw to prevent heaving of the plants by frost.

In Tidewater and Middle Virginia and Eastern North Carolina Irish potatoes may be set for a very early crop. We have had very satisfactory reports from a number of subscribers who have tried this December planting. Special care, however, must be taken in planting. The land should be deeply plowed and finely broken and the rows be then opened very deep by running the plow twice in each row, and the land should be a dry sandy loam. Apply a good potato fertilizer in the rows and mix with the soil. Then drop the sets which should be uncut and of medium size at the usual distance apart and cover lightly with soil. On top of the soil a good covering of farm yard

manure should be spread and on this plow a furrow from each side, thus making a ridge over the set. This ridge should be harrowed down in the early spring. If the plants should show signs of coming through the soil before danger of frost is past plow a light furrow on to them.

A NEW ENGLAND FARMING COMMUNITY.

A Connecticut Orchard.

Editor Southern Planter:

While at the American Pomological Society meeting at Boston I was invited by Mr. J. H. Hale, the newly elected President, to visit him at his home. I accepted with pleasure for Mr. Hale is the greatest peach grower in the world and a recognized authority on peaches and I knew it afforded me a fine opportunity to learn. Mr. Hale is a man of unusual parts, his mind is of broad and comprehensive grasp, quick and unerring in judgment; as a speaker he is strong and forcible with a full appreciation of what is humorous; in business affairs he is energetic, practical, and with great faith which is productive of great works. His orchards at South Glastonbury, Ct., number over 50,000 bearing trees while his orchard in Georgia is up in the hundreds of thousands, his force of hands between five and six hundred and his shipments of fruit go out by the car loads, and train loads. Like most men who have attempted great things Mr. Hale has been subject to much criticism. To grow fruit on the abandoned farms of Connecticut or the cotton fields of Georgia was pronounced absurd, his methods were condemned and his failure was freely predicted. But with pluck, tireless energy and administrative ability of the highest order Mr. Hale kept on and to-day he has one of the best organized and most successful agricultural enterprises in the United States.

At Hartford we left the N. Y., N. H. & H. R. R. and took a trolley running in full view of the State House, crowning a hill in a splendid park. It has an unusual history for a public building. Three million dollars were put at the disposal of six citizens, three Democrats and three Republicans. They had the building completed in the very best manner and not only had no deficit but returned over \$70,000 to the treasury.

The trolley line runs through an unique agricultu-

ral community; for fifty miles it extends along a broad highway, shaded by handsome elms and sugar maples, with farmers' houses built up on either side like a continuous street. About every $2\frac{1}{2}$ miles is a school house, church, store, post-office and blacksmith's shop. Thus the farmers have the social advantages and conveniences of city life. The political system is a most admirably democratic one. The country is divided into townships, governed by a board selected by the people, who levy their own taxes and whose treasurer once a year settles with the board and with a "town meeting." Ten days before the settlement his accounts are published in pamphlet form, showing every item of disbursement fully and this is put in the hands of the people themselves. There are often several hundred people present at these "town meetings" and they are fully informed about their affairs and moneys.

Mr. Hale's home is an ideal farmer's home, a broad veranda, ornamented with running vines, a fountain, graceful walks with brilliant flowers artistically grouped, so as not to break up, but to heighten the effect of the lawn. The house was built in seventeen hundred and something out of virgin oak and wrought nails by Mr. Hale's great-grandfather.

Back of the house is a handsome flower garden, where colors are massed together with fine effect, and behind this a vegetable garden, and fields of strawberries for plants, and countless young trees in the nursery for orchards yet to come. Utility is combined with ornament, producing a happy effect and suggesting some valuable lessons for us in Old Virginia. One thing I learned in growing tomatoes which may be of value to others. The plant is pruned to two branches and these are trained by tying to a pole until they are six feet high, all branches are pruned off except at the top where a tuft is allowed to grow and only the fruit blossoms are left below it. This brings tomatoes two or three weeks earlier than the old way and masses the fruit on the two stems for three or four feet. The plants are set deep in the ground and hilled up as they grow, cultivation being clean. This method raised the tomatoes which took the medals of France, Spain and Italy. The peach orchards show a master hand, and the dark green foliage, fine growth of new wood—the fruit wood—wide open branches extending from tree to tree, tell the story of good care. Mr. Hale believes in clean cultivation and goes over his bearing trees ten or twelve times a season. This year, in trees that were caught by the freeze, he cultivated once and sowed crimson clover and now the ground is covered with clover and the usual fall

growth. The effect has been splendid on the trees, and a part of the orchard, cultivated once, shows a decided improvement over a part where there was no cultivation and where the clover was mowed and left as a mulch. Mr. Hale is satisfied that no treatment will equal cultivation. A large block of trees which were growing up too high were cut back, the top taken out of them and now they are full of a vigorous growth of new wood and much lower. The best system is the broad flat tree headed low and kept low by cutting back. Mr. Hale tells me that in his Georgia orchards about half the fruit can be picked while sitting on the ground, and none of his trees are allowed to grow high. The disc harrow, and spring tooth harrow, gang plow with three plows, each about the size of a one-horse plow, are the tools principally used. Mr. Hale is cleaning up new ground and planting it out, some of it being grubbed clean and some of it with the stumps left in the ground.

There was one thing it did me good to hear Mr. Hale say: "I'm not afraid of the San Jose Scale any more." Last year it broke out in the old bearing peach orchard and Mr. Hale killed it last winter with the California wash, salt, sulphur and lime. He says it can be relied on to do the work and though his climate has a greater rainfall than ours it was found entirely satisfactory. Winter is the season to use it and we should all in the next few months give our orchards a good dose of it. It kills other pests besides the scale and is good for the tree. I notice that a recent bulletin of the Geneva (N. Y.) Experiment Station states that a mixture of lye in the California wash does away with the necessity of boiling it, a great thing for us if it has been fully proved.

From an observatory we looked down the hillside over a forest of peach trees and rolling ground to the waters of the broad and beautiful Connecticut river, which comes like a silver band through emerald fields from Hartford, seven miles away. The great city spread out with lofty spire and shining dome before us, the broken line of hills beyond the river, the white steamboats coming and going, all in the mellow sunshine of a September evening formed a picture of surpassing beauty, that will always come to memory's call at the sound of the name "Connecticut." Gone forever is the thought of wooden hams and nutmegs and instead rise up with pleasing grace, peaches, royal in beauty and rich in flavor, views of picturesque loveliness and an openhearted hospitality which would have done credit to Old Virginia in her palmyest days.

SAM'L B. WOODS.

Albemarle county, Va.

FRUIT CULTURE IN VIRGINIA.

Editor Southern Planter:

It was my good fortune to spend nearly two months in Southwestern Virginia this fall, returning home only a few days ago. I had the opportunity of paying particular attention to the apple crop, and made observations as to fruit growing in Virginia in general. Your grand old State has many localities where the raising of fruit for the market can be conducted with great success. The celebrated "Valley of Virginia," extending, we might say, from the Potomac on the east, or southeast, by the Blue Ridge, and on the west, or northwest, by the Alleghany Mountains, has a variety of soils especially adapted to the apple, the pear, the plum, the peach, the cherry, the quince and the grape, as well as the small fruits—strawberries, raspberries, blackberries and the like.

All fruits did well this year in the section of Virginia visited, but the apple crop was unusually heavy. Beautiful apples were hauled into the cities of Roanoke and Staunton, and to the principal stations of the Norfolk and Western and Chesapeake and Ohio railroads, to be packed in barrels and shipped. Some lots were intended for export, a considerable fruit trade with England, I understand, having developed in the past few years.

I find that the leading apple, on account of its great productiveness, fine appearance and excellent quality, is the Albemarle pippin. This variety is undoubtedly identical with the Newtown pippin of the north, but it has succeeded so admirably in Virginia, and particularly in Albemarle county that it is now more generally known by its local synonym. (We doubt this identity.—Ed.)

The Albemarle pippin is shipped to the principal cities of the United States, but especially to Washington, Baltimore, Philadelphia, New York, Pittsburgh, Cincinnati and Chicago. Albemarle county is still the largest producer, and it is expected that this fall's shipments of apples from that county will exceed 50,000 barrels. Other counties of Virginia that are large producers are Frederick, Augusta, Warren, Fauquier, Wythe, Rockingham, Botetourt, Roanoke, Montgomery, Nelson and Culpeper, which have been mentioned in the order of their importance. Each will ship this fall from 10,000 to 25,000 barrels.

One grower in Roanoke county, twenty miles from the city of Roanoke, sold his crop of apples for \$16,000. J. Coles Terry, of the Bent Mountain district, in the same county, has 4,500 acres at an elevation of 2,800 feet, where he is raising fruit very successfully. His orchards contain mostly Albemarle pippin trees. From 25 acres he realized this fall

\$5,500 for the selected apples and has many bushels of culls left for cider and vinegar. The product of 36 trees sold for \$455. Mr. Terry has exported some of his finest apples to Liverpool, obtaining \$11 per barrel. Daniel Locke, of Kearneysville, picked 1,800 bushels of apples from 60 trees, twelve years old. They brought \$1.30 per barrel. The fruit was of excellent quality. A few barrels of the fruit will be kept for the St. Louis Exposition. Dr. D. W. Border, of the same county, a pioneer fruit grower of the Valley of Virginia, also had an enormous yield of apples. One tree bore 57 bushels, and another 45. His entire crop was 2,500 barrels, the largest he ever had.

The Ben Davis, a Southern apple of showy appearance and, therefore, very salable, but notoriously deficient in quality, is also quite prolific in Virginia, where it is as popular as in Kentucky, the State of its reputed origin. The York Imperial, a Pennsylvania variety and a great favorite in that State, also succeeds remarkably well in Virginia. The Winesap is another popular kind, and, on account of its bright color, sells well. There are large orchards in Virginia in which this variety predominates. That excellent all-round apple, the Smoke House, which originated in Lancaster county, Pennsylvania, the greatest agricultural county in the Union; and the red-cheeked Maiden's Blush, of New Jersey origin, are the popular autumn varieties of Virginia. Not much attention is paid to the summer varieties, but the Early Ripe and Yellow Transparent are those mostly grown. The Red Astrachan, which is one of the best early varieties in the north, ripens unevenly in Virginia.

In the apple districts of Virginia the orchards are not limited to 10 or 20 acres as in Pennsylvania, but there are commercial orchards hundreds of acres in extent. Col. A. M. Bowman, of Salem, a member of the Virginia House of Delegates, and President of the Diamond Orchard Company, has 45,000 trees (apple and peach, but mostly the former), just coming rightly into bearing. Nearby these are orchards of 150 to 300 acres. This is not equal, to be sure, to the Osage Mountain apple district of Missouri, but it is quite fair for a beginning, as the apple industry of Virginia is in its earliest stages of development. Possibly we may yet hear of the equal of that Osage Mountain orchard of 18,000 acres, as the Stuart Land and Cattle Company, of Southwestern Virginia (Russell county), owning 40,000 acres of land, was recently organized for fruit growing and cattle raising purposes. It is to be hoped, however, that this company will not, like that in Missouri, limit the number of its varieties of apples to two—the Ben Davis and Jonathan. Land

suitable for apple culture in the Valley of Virginia and on the ridges, can be had, we ascertained, for \$10 to \$30 per acre.

There are some varieties of apples which in Virginia attain unusual size, just as the Yellow Bellflower of the State of Washington is twice as large as the same variety grown in Pennsylvania. The Pennsylvania Fallawater, or Pound, grows to enormous proportions. The writer caught one of the elevator boys of a Roanoke hotel one day munching an apple of this variety, while he directed the operations of the car as it ascended and descended. The apple looked to be almost as large as his head. The following colloquy took place: "Boy, where did you get that apple?" we inquired. "Bought it," he managed to say sheepishly, (as though he had been detected in stealing it), his mouth full of the juicy fruit, and his cheeks fairly bulging. "What did you pay?" was the next question. "Three cents," he said. Then raising the seat in the elevator he revealed a still larger apple. "Two for five?" we asked. "Yep," he said, with a grin.

The San Jose Scale, that most pernicious insect, has made its dreaded appearance in most of the apple districts of Virginia. Fortunately, through the enactment of the State law of March, 1896, the pest is being successfully combatted. Bulletins replete with information on the scale and other injurious insects, as well as on fungus and atmospheric diseases of fruit trees and plant life, are issued regularly from the Agricultural Experiment Station at Blacksburg, and sent to the leading fruit growers of the State, as well as to all who write for them. It is to be regretted that Virginia does not appropriate more money for carrying on this commendable work.

The trees (following out the recommendations contained in these bulletins), have been treated with either the whale oil soap solution, or the kerosene emulsion, or both, at the discretion and convenience of the grower. Recently, the head gardener and horticulturist of the Norfolk and Western Railway Company, Mr. Patrick Foy, of Roanoke, discovered the efficacy of caustic soda for the destruction of the San Jose Scale. As to the value of this remedy he has been confirmed by the New York State Fruit Growers' Association, members of which were engaged this year in a series of experiments with caustic soda, in connection with lime and sulphur.

This new wash for ridding tress of the San Jose Scale consists of 33 pounds of lime, 17 pounds of sulphur and from 3 to 4 pounds of caustic soda to one barrel of water, mixed without boiling, thus saving expense and much labor. The scale can be controlled

by the thorough application of this wash in winter or early spring. A pure article of lime should be used, so as to reduce to a minimum the quantity of gritty sediment. The wash can be readily sprayed through a Vermorel nozzle.

The great danger of the orchards of this country being overrun by the San Jose Scale makes it imperative that an unrelentless and unceasing war should be waged, and the remedies to be used should be published again and again. There is no excuse for ignorance in this matter. Several months ago two physicians of the writer's acquaintance, who had gone extensively into fruit culture near the city of Reading, purely as a business venture, found their orchards infested with the scale. Without looking around long for remedies they ordered all trees that had been attacked to be cut down. Their loss amounts to thousands of dollars, all of which could have been saved if the owners of the orchards had had the proper knowledge.

Nine years ago, at a meeting of the State Board of Agriculture, the writer presented a report making known the first appearance of the San Jose Scale in Pennsylvania, and gave the remedies that should be used, recommending more particularly the whale oil soap solution, to be applied to the bark of tree on which the scale had appeared, the application to be made while the trees were in dormant condition. By the following year the scale had made such progress that its presence was reported in twelve counties. Now in this year of grace, 1903, there is scarcely one of the sixty-seven counties of the State, in which it has not appeared. The necessity for vigorous action is thus apparent.

CYRUS T. FOX,

Reading, Pa., Nov. 20, 1903. *State Pomologist.*

SMALL CANNING FACTORIES.

Editor Southern Planter:

Now that winter has come and work in the garden and orchard is not pressing, we can figure some on broadening our work next year. Why not think of starting a small cannery next year? If there had been more small canneries in Southwest Virginia this year a large per cent. of the immense apple crop that wasted could have been canned up at a good profit. While we must not expect such a crop next season, still, other fruits can be put up at a profit and tomatoes can be grown at the rate of one to three hundred bushels per acre. I have grown them in this county (Montgomery) at the rate of four hundred bushels per acre. Perhaps there is no other vegetable for canning that pays better than the tomato. Canned to-

matoes are one of the standard articles of the groceryman. There is always a demand for them.

People in Virginia and other Southern States are consuming more fruits and vegetables each year. It is being found out that we can grow large quantities of fruits and vegetables on our soils with comparatively small outlay. Sometimes the market prices go down and these products do not pay well to ship. Just here the small cannery comes in and not only saves what might otherwise go to loss, but makes a handsome profit. It puts fruit growing and truck farming on a more sure basis.

The cost of small canning factories is now so low that each individual grower may have one.

Two years ago when I completed some experiments with a small canning outfit which I had put up for experimental purposes, and had published the results of my experiments, I received a number of letters from almost every Southern State asking for more information upon the subject. I advocated strongly the establishment of small canning factories in connection with cotton gins, where there is a water supply and the boiler and house lie idle during the canning season. Now there are a large number of small canning factories in Texas where these experiments were carried on. And since I have come back to my native State I am informed that Botetourt and Roanoke counties can more tomatoes than any other two counties in the United States. I am glad to know that Virginia is wakening up along this line. The money that is usually spent for these things may be kept at home. It was formerly believed that canning factories were very costly, and this belief has retarded development of the canning-industry in the Southern States.

The first outlay for my canning factory was \$340, and the capacity was estimated at 5,000 cans per day. However, to be more accurate, I will give here some quotations from the catalog of a firm that sells small canning outfits and of whom I purchased mine.

Capacity estimated at 3,000 3 pound cans or 5,000 2 pound cans per day. Kettles set in brick work or attached to steam boiler. Process kettle, 36 inches in diameter by 36 inches deep, \$18.00; exhaust kettle, 36 inches in diameter by 24 inches deep, \$16.00; scalding kettle, 30 inches in diameter by 24 inches deep, \$14.00; 3 sets grate bars, 3 furnace doors, or 3 steam coils if boiler is used, \$15.00; 2 gasoline fire pots, complete, \$32.00; 2 6-tier process crates, \$14.00; 2 1-tier exhaust crate, \$7.00; 1 set crane fixtures, \$10.00; 4 capping machines, \$3.00; 4 copper cappers, \$4.00; 2 tipping cappers, \$1.00; 2 scalding baskets, \$2.00; 1 forging handle, 25 cents; 1 forging stake, \$2.50; 1 vise, \$2.50; 1 dozen files, \$1.35; 2

pair can tongs, 70 cents; 1 forging hammer, \$1.00; 1 floor truck, \$12.00; 2 dozen peeling knives, \$2.00; total, \$158.30.

Such a plant would can everything except corn and beans. For these two things a closed top kettle is necessary, and this would cost about \$120.00. At least a 15 H. P. boiler should be used. A building 20x45 feet is necessary, also good clean water in abundance. If the boiler is placed in a separate room it is much better on account of the heat. I am informed that a number of persons in Virginia have their kettles set in brick work. While this method is much less costly, it is much more inconvenient. The kettles are more difficult to clean and the capacity is lessened.

I have had a great many letters asking questions on the subject how to can. Full instructions on this subject are sent by the factory people when the machinery is sold. However, the Virginia Experiment Station at Blacksburg has just published an excellent bulletin on "processing," which can be had by writing for it.

In starting a factory one should have an expert for a short while. Labor is usually paid for by the piece or job. Women and children usually do the best work. The prices paid will vary in each locality. The following, I consider, a low estimate: Peeling tomatoes, per 2½ gallon bucket, 11 cents; peeling apples, per 2½ gallon bucket, 2½ cents; string beans, per 2½ gallon bucket, 3 cents; husking corn per dozen ears, 1 cent. The processor should have \$2.00 per day, the capper \$1.00, and the tipper less.

The following figures will enable one to estimate how many bushels it will take to fill a certain number of cans:

	2 lb. cans.	3 lb. cans.
1 bushel apples will fill.....	30	20
1 bushel string beans will fill.....	30	20
1 bushel blackberries will fill.....	50	33
1 bushel corn will fill.....	45	..
1 bushel peaches (standard) will fill..	25	18
1 bushel peaches (pie) will fill.....	45	30
1 bushel tomatoes will fill.....	24	18

Three pound cans will cost about \$2.25 per hundred. Two and one pound cans will cost less, of course.

The freight on cans is rather heavy since our nearest shipping point has been Baltimore. Now, I understand a can factory has been established in this State at Buchanan. I strongly advise starting a small factory at first and then enlarge it as more experience is acquired. A great deal depends upon good business management. Labor is one of the most costly items and this part of the business has to be looked

after closely. But the profits are usually very satisfactory with good management. I may discuss this subject further in another number.

Montgomery County, Va.

R. H. PRICE.

THE BITTER ROT OF APPLES.

We take the following advice as to treatment for this disease from a Bulletin recently issued by the Bureau of Plant Industry, Department of Agriculture:

1. The bitter rot or ripe rot is one of the most serious diseases of apples. The loss due to this disease in 1900 was estimated (for the United States) as \$10,000,000. It is one of the most difficult diseases to control and is constantly on the increase.

2. The bitter rot is due to a fungus, *Glomerella rufomaculans* (Berk.) Spaulding & von Schrenk, hitherto generally known as *Glæosporium fructigenum* Brk.

3. This fungus until 1902 was known only in its conidial stage on pomaceous fruits and grapes. The perfect or ascus stage has since been discovered both in cultures on fruits and in artificial cankers on the apple limbs.

4. The fungus attacks ripening apples during July and August, and is most virulent during moist, hot summers. It is most active on apples in the belt of States on the line of the Ohio river, from Virginia on the Atlantic Ocean to Oklahoma in the West, and southward.

5. During the past summer canker-like areas were discovered on apple limbs from which the disease seemed to spread. These cankers generally occurred in the upper parts of trees and contained spores of the bitter-rot fungus, as proved by direct inoculations into apples.

6. Inoculations into healthy apple limbs of bitter-rot spores from pure cultures of the bitter-rot fungus (made both from diseased apples and cankers) resulted in the formation of cankers similar to those found in the orchards. Spores from these cankers produced the bitter rot in sound fruits. This proves beyond doubt that the bitter-rot fungus is the cause of the cankers on apple limbs in the orchard.

7. The spores of the bitter-rot fungus are washed from the cankers onto the apples below the cankers. Spores are carried from tree to tree by insects, and possibly by raindrops.

8. One of the best methods for combating this disease will consist in carefully cutting out all cankers during the winter. These should be burned at once. All diseased apples on the ground or in the tree should be collected and destroyed. As a further precaution, trees should be sprayed with standard Bordeaux mixture at least once before the buds open, and again frequently from midsummer until the fruits are almost ripe.

ORCHARDING.

Editor Southern Planter:

In setting an orchard, experience has proven that it is best to head the trees low, that is, let the tree limb out near the ground. It is best for several reasons. It prevents sun-scald of the body by shading the South and Southwest sides of the trunk of the tree in spring, summer and winter, and making a healthy body will entirely eradicate the flat-headed borer, one of the worst pests in the orchard which has not been properly set.

I discovered while working in my father's orchard in 1876, that trees headed low were healthy bodied and free from flat-headed borers, while those headed high were injured by the sun, and were invariably attacked by this pest. Many articles have been written about how best to fight this enemy. For more than 20 years I have not had this insect to contend with in any of our orchards, amounting to over 2,000 acres. Low headed trees entirely eradicated them. In order to get a low headed tree, we formerly had to raise our own nursery stock. Now, your nurserymen will provide you with a low headed tree, if you ask for it, and I would not plant any other.

To make a low head does not require a forked head. Trim to make a centre. I will treat of trimming in a future article. A forked tree will sooner or later split in a wind storm, or when loaded with fruit. You can prevent forks, and make a head with a centre when they are small and thus let the trees start properly. Another advantage in low headed trees is that it prevents wind storms from topping or uprooting them so easily. It also preserves part of the crop from storms, as the limbs near the ground will be loaded with fruit while the storm takes the top fruit nearly all off. Do not be afraid that the fruit will not properly color. I have gathered more than a barrel of fine apples resting on the ground from the lower limb of a single tree. A low headed tree also saves one-half the expense in picking, as most of the fruit can be gathered while standing on the ground. Another point to be observed in setting trees is with reference to the direction of the prevailing winds. To illustrate: Here in the Ozark our prevailing wind is from the Southwest, and the hot sun on the orchard in spring, summer and winter is from that direction. Therefore to properly set trees, they should be leaned to the Southwest about 20 degrees or more in setting them, and the tree, before it reaches the age of bearing will be perpendicular, if not leaning to the Northeast. A tree planted perpendicular at the time it is set will lean to the Northeast before it is bearing, and thus be injured by sun scald as above stated. It is, therefore, important in setting a tree to observe this precaution.

A tree should be set in the orchard not deeper than it stood in the nursery. There are several reasons why this is best; not only to prevent the "root rot,"

but to prevent other diseases, and also the aphid. A tree set near the surface will not be so easily killed by the round headed or root borer, for when the tree is set deep in the earth it is easily girdled and killed by this insect, but if the roots start at the surface, this borer will usually follow and kill but one root, and the tree will throw out new rootlets, and the orchard not die so readily from this pest.

A tree set properly with its roots near the surface will seldom have aphid. It is best in setting your trees to take about 10 or 15 pounds of tobacco dust and place it in a large candy pail or tub full of water and let it soak for a few hours, and just before setting the young trees dip the roots in this solution; it is a preventive of aphid.

Springfield, Mo.

S. A. HASELTINE.

SELF-STERILITY IN APPLES.

C. B. S., U. S. DEPT. OF AGRICULTURE.

About ten years ago Prof. M. B. Waite called attention to the absolute sterility of certain varieties of pears when fertilized with their own pollen. Later Prof. F. A. Waugh and others showed that all the varieties of Japanese plums and practically all the native American plums are self-sterile, and will not bear any fruit whatever unless crossed with other varieties. This work led to similar investigations with apples and very interesting results have been obtained. The Ben Davis apple, which proved self-fertile at the Kansas Experiment Station, was found entirely self-fertile at the Experiment Stations in Rhode Island, Vermont and Canada. Even in Kansas, where 26 per cent. of the self-fertilized blossoms set fruit, it was found that the self-pollinated fruit was not so large or so vigorous as the fruits from cross-fertilized blossoms on the same tree. Besides, a much larger proportion of the self-fertilized fruits dropped before they reached the size of a hazelnut than of the cross-pollinated fruit.

The following alphabetical list shows the varieties of apples that have thus far been found by actual trial at one or more experiment stations to be self-sterile: Arkansas Black, Belleflower, Astrachan, Ben Davis, Blenheim, Canada Red, Early Ripe, English Russet, Fameuse, Fanny, Gilpin, Golden Pearmain, Gravenstein, Grimes Golden, Hawley, Huntsman, King, Lily of Kent, Mammoth Black Twig, Mann, Missouri Pippin, Nero, Northern, Northern Spy, Paragon, Porter, Primate, Red Kennedy, Red Streak, Ribston, Rhode Island Greening, Roseau, Roxbury Russet, Spitzenberg, Stark, Staymen, Strawberry, Talman Sweet, Wealthy, Westfield, Williams Favorite, Willow Twig and Winesap.

The following varieties have been found more or less self-fertile and capable of producing some fruit when standing alone, and not cross-pollinated: Alexander, Astrachan, Baldwin, Ben Davis, Bough, Cooper Early, Chenango, Early Harvest, Esopus,

Fameuse, Jonathan, July, Ontario, Rhode Island Greening, Smith Cider, Smokehouse, Twenty-Ounce, White Pearmain, Wine and Yellow Transparent. With many of the varieties in this list not more than one blossom in a hundred set fruit when self-fertilized. With scarcely any was a good crop secured, and in nearly every instance the fruit has been smaller and less desirable than cross-pollinated fruit. The conclusion seems inevitable that large blocks of a single variety of apples should never be planted. Varieties should be intimately mixed in the orchard to insure cross-pollination. These varieties should be such as will blossom about the same time and capable of cross-fertilizing each other.

With respect to the latter point, Jonathan, Huntsman, and Cooper Early proved especially valuable as pollenizers at the Kansas Experiment Station. Prof. G. H. Powell at the Delaware Station found that Paragon, Staymen, Winesap and Lily of Kent, all weak pollen bearers except the latter, to be intersterile, and should therefore never be planted together in commercial orchards for the purpose of cross-pollination. Further work along these lines to determine what varieties bloom together and are most suitable for pollenizing each other is very desirable. And since varieties behave differently toward each other in different sections of the country, these data should be determined in many different localities.—*American Agriculturist*.

VIRGINIA CORN EXHIBIT AT ST. LOUIS.

As a further incentive to stimulate Virginia corn growers to make a creditable showing at the St. Louis Exposition, the Virginia Commission have decided to offer \$120 in premiums as follows: \$50 for the best exhibit of corn, from any county to consist of ten or more varieties of 100 ears each; \$30 for the next best exhibit from any county, of ten or more varieties, and \$20 for the third best exhibit from any county, of ten or more varieties, and \$20 as before offered, for the best one hundred ears sent in by any grower.

All corn competing, will be exhibited under the competitors name, whether a prize winner or not, and all exhibits sent in, must be sent with the understanding that they are to become the property of the Commission for this purpose. Competent judges will be chosen to make the awards in this competition, and notice of the winners will be published in the State papers.

The Commission will pay freight charges on all shipments, which should be packed in substantial boxes or barrels and shipped by freight to Geo. E. Murrell, Superintendent, No. 14 Governor street, Richmond, Va.

VA. COM. TO THE LOUISIANA PURCHASE EXPOSITION.
Richmond, Va., Oct. 26, 1903.

Live Stock and Dairy.

THE DUAL PURPOSE COW.

In replying to an inquirer as to the relative merits of different breeds of cattle, and especially as to the value of Red Polls for the ordinary farmer in the South, we remarked that cattle of this breed had done what no other breed had done—viz., take first premiums as beef cattle at a fat stock show, and first premiums at a dairy show. Commenting on this statement, the editor of *Practical Farmer* (Prof. Massey), in a late issue of that journal, takes strong ground in favor of the keeping of breeds of cattle bred for specific purposes, and against the dual purpose cow. He remarks that “a jack of all trades seldom is as good as one with a definite hobby, be it a cow or man. Good dairy form and capacity in a cow is an entirely different thing from good beef form, and no one animal can have both types in perfection.” Whilst there is a good deal of force in what the editor says as to a jack of all trades, yet we would remind him that there is another type of man who fills a very wide place in the world whilst not essentially a specialist—viz., the man who “knows something about everything, and everything about something.” So, in like manner, we think a cow which meets the needs of a very large class of the farmers of the country is a valuable cow, even though she be not so specialized as to only perfectly fill one place in the economy of the farm. Such a cow is the dual purpose cow, and that she can be found, the experience of English farmers and many in this country conclusively proves. The *Breeder's Gazette* says this week that the supremacy of England in live stock is unquestioned and unquestionable, yet we venture the assertion without hesitation or fear of contradiction, that more than three-fourths of the cattle in that country are dual purpose cows. Our position on this question of dual purpose cows cannot be better stated than in the words of Prof. Thomas Shaw, one of the best judges and most experienced cattle men in this country. He said in stating his position on the subject: “I believe in a special dairy cow. She includes the Holstein, Dutch Belted, Ayrshire, Guernsey, Jersey, French Canadian, and Kerry of the pedigreed breeds in America. Her place is on farms where cattle are kept almost entirely for the dairy products, which they furnish, or in the stable of the individual who keeps but one cow. I believe in the special beef cow. Her place is on the range or on the large farm, where circumstances forbid the milking of the cows by hand. Her domain in America has probably

more than attained a maximum since large farms are being divided. I believe in the dual purpose cow. Her place is on the arable farm, where the farmer is not a dairyman in the special sense, and where production is sufficient to justify the rearing of steers for beef. This means that there is a place for her on probably two-thirds of the farms of the United States, and that on these she can be reared more profitably than either of the other two classes of cows. There are in America five pedigreed breeds of dual purpose cows. These are the Shorthorn, the Polled Durham, the Brown Swiss, the Red Poll, and the Devon. The dual purpose cow is at present far more numerously represented in the graded than in the pure bred form.” In England the dual purpose cow is most numerously represented by the milking type of Shorthorn, but the Red Poll comes as “good second.” One or other of these types are to be found on almost every farm. The pure dairy types are there only found on few farms. The Jersey is almost solely confined to the home farms of the great land owners and to the small farms of gentlemen who keep them for a domestic supply of butter. The dual purpose Shorthorns and Red Polls furnish nearly the whole supply of milk for the great cities and towns of that country, and the farmers keeping them supply a very large part of the steers which are fed for the meat supply of those places, and also a great number every year of fat cows and heifers which have failed to breed. This is the beauty of these breeds in the eyes of the English farmer. If they fail to breed and become milkers, they will make as good beef as the beef breeds, and will do it profitably. A bull calf from one of these cows is as readily and profitably made into veal or into a feeding steer as a bull calf from any of the beef breeds. Here, as there, no one wants a Jersey or grade Jersey bull calf. He will neither make good veal nor a profitable steer. Only a few days ago we noticed a communication in the *Breeders' Gazette* from a correspondent in Missouri complaining that when the steer buyer comes around and asks for a bunch of steers his first question is “Any Jerseys among them?” If you are unlucky enough to have a Jersey or Jersey-Shorthorn steer the buyer will tell you he cannot use him or “you take that Jersey out,” or I will give you \$5 less for that Jersey-Shorthorn steer. If you ask the reason why, the answer is, “He won't feed, a poor seller, spoils my other steers.” This is exactly the position of our farmers in the South. They have got this Jersey blood so spread amongst

the cattle here that instead of being able to supply a large part of the feeding stock of the country we are practically shut out from this market and have to waste feed and time fitting these ill-favored animals for local markets where they sell at about half the price that a good steer ought to fetch. The great majority of our farmers cannot be dairymen if they would. They are not so situated as to be able to market the produce and if they were their entrance upon the business would be the signal for such a drop in the price of dairy products as would make the business unprofitable. In the neighborhood of large cities or where the farm is on the direct road to Northern cities and not too far away from them, there is an opening for dairying, and there the pure dairy breeds should be kept, but speaking generally the type of cow needed on the farms of the South is one which will give an abundance of milk to supply the farmer's family and hands and a few nearby people in the small towns and will raise fat veals and good steer calves for feeding. The Shorthorns and Red Polls will do this and high grades of these types not having any Jersey admixture of blood in them will be almost as serviceable. Until our pastures and feeding capacity are improved, we find by experience that the Red Polls better meet our needs than even the Shorthorns. They are not such heavy cattle and have not been so long accustomed to high living as the Shorthorns. Hence they do better on our thinner pastures and coarser feed. In England the Shorthorns and Shorthorn grades do better as the pastures and feed are there much better. We have kept Shorthorn grades (high ones) in England that made 22 pounds of butter per week giving over three gallons of milk at a milking, and have made these cattle into fat beef weighing from 1,200 to 1,500 pounds, and their bull calves into steers weighing 1,500 or 1,600 pounds at two and one-half years old. In this country a grade Shorthorn cow weighing 1,500 pounds in fair flesh has given 9,628 pounds of milk in the year and made 439 pounds of butter, and would at any time, when dry, have made a 1,600 pound fat beef cow. Whole herds of Red Polls in England have averaged 6,000 pounds of milk in the year and several cows have produced over 10,000 pounds of milk. In this country in the Red Poll herd of Capt. Hills, of Ohio, several cows have produced over 10,000 pounds of milk in the year and one cow produced 52,858 pounds of milk in five years. Against steers of these two dual breeds there is no discrimination by buyers. They are as freely bought as the steers of the true beef breeds as it has been found that invariably they feed

as fast and as economically as those of any pure beef breed, and the fat stock show records give them a high place. On thin lands probably no better type of a dual cow can be found than the Devon. She is only small but she gives milk enough to make a fat calf and supply a family, and will raise steer calves that will feed into useful beef, and this at a minimum cost for keep. What the Southern farmer generally needs now is cattle of this type. When farms are more generally improved then he should take up the pure beef breeds, and raise steers that the great feeders want, or that he can feed himself into prime beef for the great markets. These beef breeds will give milk enough to raise their calves but no surplus for the family or for sale. The dual breeds will do both and do both profitably. The special bred cow like the specialist amongst men has a place to fill but that place whether for the cow or the man is not the place to be found on the great majority of farms or in the great mass of the people.

INOCULATION FOR TEXAS FEVER.

Editor Southern Planter:

Messrs. W. M. Watkins & Sons, of Charlotte county, Va., seem to think, judging from their letter in your November number, or attempt to try and show that inoculation is nothing but a notion. I have tried quantities of both, salts and sulphur, too. I venture to say, of the 20 or 25 head of cattle lost from our herd within the past two or three years from tick-fever, that they had been treated to more than 100 pounds of salts, and quite a lot of sulphur. Nothing is absolutely safe but inoculation and parties who contemplate purchasing pure-bred cattle to carry into ticky districts, should secure them now and have them inoculated about the first of January and again the first of March, and have this work done by a veterinarian of tick-fever experience. Salts and all other remedies failed in case of Mr. R. F. Moss, of Booker, Va., and likewise in case of the Norfleets at Roxobel, N. C., and if others would testify from an honest purpose, you would doubtless be surprised to know the fatality from just nothing but ticks.

If parties who want immune cattle could see this Angus bull, they would soon be convinced that he had battled fearfully with ticks, for he bears the scars to convince even the most doubtful. As a rule, when you find a cow, sick with tick-fever, she is then too far spent for salts or sulphur even should they be the best of remedies.

Being thoroughly convinced of these facts as I have

found them out and conclusively proven them to be true, I stand solidly on this rock, "Inoculation," and with one before firmly feel:

"Come one, come all, this *Rock* shall fly,
From its firm base as soon as 'I.'"
Halifax county, N. C. C. A. WILLIAMS.

LIVE STOCK SALES IN CHICAGO.

The American Swineherd of Chicago says that market alone has received up to November 1st 462,000 cattle more this year than they did last, and the receipts of hogs for the same period show a *shortage* of 460,000 as compared with the same time last year, and this applies to one market only.

FORAGE CROPS AND PORK PRODUCTION.

It is well known that swine are healthiest and do best when given plenty of exercise and kept in sanitary surroundings. The hog in a state of nature is a clean animal, feeding on grass and herbs and having his lair in some secluded, well drained spot. He also is careful about his domestic habits—a strange contrast to the degraded creatures which are so often found shut up in filthy pens by indifferent owners. Where such conditions prevail it is not surprising to find hog cholera a dreaded scourge. If these same animals were given the run of a large pasture, cholera would soon disappear and they would become healthy, contented animals paying a handsome profit to the owner. There is no section of the country where some grazing crops cannot be had throughout the greater part of the year. Where bluegrass or other tame grasses and red or alfalfa clover can be had, they are excellent for the purpose, though they will probably not fatten animals so rapidly as a good succession of crops such as can be grown in many localities. In this respect the south is particularly favored, for a succession of crops can be had from seven to nine months of the year, or throughout the entire year, if one includes the winter growing cereals. If a succession is properly planned it is quite possible to put young hogs on grazing crops in the spring and with a limited amount of meal, finish them for the market by November or December; in other words, in a seven to nine months' grazing period. This means the production of extremely cheap pork.

The grazing experiments here discussed were commenced in June, 1902, at the Tennessee experiment station and were concluded in November the same year. They are initial and subject to modification. The succession of crops used was winter oats, June 2 to July 10; cowpeas, September 3 to October 7, and soy beans from October 7 to November 8. The hogs were put on the oats when the grain was just coming

into head and were not turned off until it was dead ripe. They were put on the first lot of cow peas when the plants were vining and were turned off when it was in full bloom. They went on the sorghum when it was in early bloom and were turned off when it was dead ripe. When placed on the second lot of cowpeas the pods were beginning to form; when taken off there were many ripe pods. When put on the soy beans the pods were well formed and the plants were dead ripe before the hogs were removed.

Six pigs were run on the crops mentioned. While on oats and cowpeas they received corn meal; while on sorghum and matured cowpeas they received wheat meal; and while on the soy beans, corn meal. The meal was fed at the rate of one pound per head per day. The gain of the individual hogs was as follows: On oats one-half pound, on young cowpeas one-half pound, on sorghum one-quarter pound; on matured cowpeas one-half pound; on soy beans 0.8 pound. The six pigs weighed 240 pounds when they went on these crops and 745 pounds when they came off. With hogs of the weight indicated, an acre of oats would have fed six pigs 248 days or 82 hogs 15 days.

An acre of cowpeas just vining would have fed six pigs 187 days; sorghum, six pigs 67 days; cowpeas, six pigs 113 days; soy beans, six pigs for 124 days. This would be at the rate of 643 pounds of pork from an acre of oats; 562 pounds from an acre of partially ripened cowpeas; 400 pounds from sorghum; 366 pounds from matured cowpeas, and 600 pounds from soy beans. Had corn meal been fed with the cowpeas when nearly matured, they would doubtless have made a much better gain than that indicated.

These facts show beyond the question of reasonable doubt that soiling crops can be utilized to the greatest advantage in the production of pork in the middle south, and that a large amount of pork can be secured from an acre of land with a very small consumption of grain.

A. M. SOULE.

Exp. Station, Tenn.

CATTLE QUARANTINE IN VIRGINIA.

The State Veterinarian issues the following notice to cattlemen, railroad companies and others doing business in Virginia:

BLACKSRUBG, VA., Nov. 12, 1903.

From November 1, 1903, to January 31, 1904, inclusive, cattle from the quarantined district of the State of Virginia may be moved for purposes other than immediate slaughter to the non-infected area within the State of Virginia, after inspection and upon written permission by an inspector of the Bureau of Animal Industry, or a duly authorized inspector of the State of Virginia.

The following bureau inspectors will inspect cattle at the points named below, viz.:

Dr. J. M. Goode, at Roanoke, Va.; Dr. G. C. Fawcett, at Norfolk; Dr. Yingist, at Union Stock Yards, Richmond, and Dr. D. C. Hanawalt, at Lynchburg, Va.

If the Boards of Supervisors of the different counties wish to have local men appointed to do this inspecting, in order to move cattle to the non-infected area of this State (said local inspectors to be appointed at the expense of the counties where the inspecting is done), then the names and addresses of these men who are recommended by the supervisors to do this work, should be sent to the office of the State Veterinarian, at Blacksburg, Va., at once, in order that said local inspectors may be instructed, duly authorized and appointed by the Board of Control of the State of Virginia to inspect cattle from the quarantine district of the State, and when said cattle are found to have no ticks on them, then the inspector may give a written permission allowing these cattle to be moved across the quarantine line.

J. G. FERNEYHOUGH,
State Veterinarian.

A BIT OF THE RANGE.

Editor Southern Planter:

Channing next boss! A gentle shake by Sam and then—as the patient fails to realize the situation—a more vigorous shake, this does the business. The “tenderfoot” is on his feet and has his toilet complete just as the train pulls into the pretty little town of Channing, Texas, way up in the Pan Handle and right pretty it certainly was that November morning at 2:30 with the full moon shining as the moon shines only on the great plains. Making his way to the hotel to finish that nap the writer finds the concern has changed hands since last winter, the jolly Irishman has given place to a more staid Yankee, but the bell boy is the same and with a fist in his sleepy eye he welcomes us in true Texas style. We are soon tucked away in a cosy bed there to remain a couple of hours, then up and breakfast before day. Stepping into the office after breakfast we were greeted with “Hello, Mr. French! had to come back again did you?” Turning I was glad to see Mr. Bob Duke, foreman of the “Rito Blanco” division of the great X. I. T. ranch. A jolly good fellow is Bob. A cow man every inch of him. Soon Col. Boyce, the hustling manager, comes in. After he has told a couple of his good stories and we have used up considerable of N. C. tobacco he remarks, “The boys are saddling up and as you are going out with them would you prefer to travel in the buggy or on horseback?” What a question to ask a North Carolinian even if he is an adopted son. I chose the saddle, of course, and so “Pinto” was brought out—he being well along in years and in the opinion of the boys perfectly safe for the “Tender-

foot” to ride. A brisk canter of four miles and we were at the gate opening into the first large pasture—fifty square miles in extent. Just as the sun peaks above the horizon we halt and Bob gives his orders. “Charlie, you and Jim work left front, Hank you take left centre, George, Tom and I will work right. Mr. French, you can work center, we will round at four mile—a wind mill four miles from the starting point.” Then out they circle, and who that has not been there can realize what it means to gather in a “round up” all the cattle on fifty square miles of range. In the course of an hour or two black cattle are appearing in groups on the horizon, the work goes on and by noon what a sight! Enough to swell an *Angus* man until he “busts” the buttons off his vest. Eight hundred shiny black beasts coming in lines from all directions as if they knew what was wanted and were out looking for that particular wind mill. Soon they were all in the bunch and seven cow boys in a circle about them. Bob remarks, “Seeing that horse fellow—the boy with the bunch of 65 horses from which to select remounts for the boys’ afternoon work—isn’t in sight yet we had better kill a beef so we will have something for dinner.” Suiting the action to the word he uncoils his rope and that *red* calf which ought to have been born black anyway, is soon on the gallop across the plains toward the chuck wagon, making a good deal of noise, I will admit, but game to the last, and doing much better than would most of us in his place. The cook meets him a few rods from the wagon, “falls on his neck” and in fifteen minutes the boys had beef for dinner, and such beef, beef the like of which only an *Angus* knows how to produce and a plainsman knows how to cook. The chuck wagon at about 1 o’clock was one of the prettiest sights the writer ever looked upon. Anyway it appealed to him in a manner to be remembered. The boys seemed to see beauty in it also. By the way they come on the gallop at the signal from Jack, the cook, and Jack can cook. The writer hopes—on account of his health—to never again be tempted with such hot rolls, roast beef, pork and beans, baked yams, boiled potatoes, coffee, etc., as Jack set before us. Take it away, boys, was the signal for every man to get a tinplate, knife and fork, spoon and tin cup, and then—I blush at the memory, and for hours afterward felt for that *Angus* calf. After doing justice to Jack’s dinner the writer’s *real* work begun, as one hundred and twenty top two year old heifers were to be cut out of that mass of eight hundred before night. Cutting individual wild cattle out of a large bunch is no boy’s play. One must select the animal he wants, follow her closely with his horse in and out through the surging mass, grad-

ually work her to the outside, then with a touch of the horse with the spur he dashes between the heifer and her mates, by dodging and whirling manages to run her several rods away, when a couple of the boys give chase and run her to the new bunch that is being formed. This process is gone through with in the case of the one hundred and twenty head, and just at night fall we start them off toward their "bedding ground"—where they are to be guarded for the night, which place is near where the chuck wagon is stationed. The said chuck wagon had been in the writer's thoughts for some time previous and his mind had strayed back to the subject at more frequent intervals for the past hour. We welcomed Jack as a brother and were soon doing justice to an excellent supper, having been joined a few moments before by several of the boys from one of the southern divisions of the ranch. We make a merry crowd. A prize is offered to the man who can tell the biggest lie. In this contest the writer got nearly to the "head of the class."

Soon Bob said it was time to turn in. Each man pulled his roll of bedding from the top of the wagon. A long strip of canvass, 6x14 feet, three woolen blankets and a thin feather "tick" is the outfit for each man. The end of the canvass is laid on the ground, the tick on that, one blanket under the sleeper two blankets the other end the canvass over and the bed is made. Bob and I sleep together. "Better pull that canvass over your head, Alf, it will be d—d frosty before morning." We followed instructions and after taking this precaution found Bob had told the truth about the weather. Along in the night we were awakened by the worst noise imaginable. Inquiring what's the trouble was informed that it is Jack calling us to breakfast. The writer has often wished for a more extensive wardrobe but can truthfully say one pair of trousers was all he cared to have to pull on that cold morning. In about thirty minutes we had dispatched our breakfast, then—by that time it being light enough so we could see the cattle—the bunch was started for the railway, twelve miles distant. There they were rested until the following morning when just before day they were loaded on the cars and the long trip, eighteen hundred and fifty miles, was begun. Eleven days later we arrived at a little station in North Carolina. Borrowing a neighbor's horse the writer unloaded the "blacks" and drove them four miles in a pouring rain. On arriving before a certain house we were greeted with "Papa's come! Papa's come!" and the cow boy and girl of to-morrow arrived on the scene.

After all, there really is "no place like home."

Rockingham Co., N. C.

A. L. FRENCH.

THE WORLD'S YEARS BUTTER FAT RECORD BROKEN.

Charmante of the Gron, No. 14442, was imported by Mr. H. McK. Twombly in 1901 from the herd of Mr. E. A. Hambro of Kent, England. She was dropped July 7, 1896, and is registered on the Island as 3944 P. S., R. G. A. S. Her sire is His Majesty 952 P. S., R. G. A. S., known in England as MaCharmante 4890 E. G. H. B. She was bred by Mr. J. Bourgaize, Gron, St. Savior's, Guernsey. Charmante of the Gron is a very well marked cow, of good dairy conformation, with excellent udder, and a great credit to the breed and to Mr. Twombly's choice herd. She dropped a bull calf October 6, 1902, and he is developing into an animal of much promise and is known as Florham King, No. 8401.

Her year's record began October 11th, 1902, and the requirements for her admission to The Advanced Register were 10,000 pounds milk; 360 pounds butter fat. The results of her year's work are as follows:

	Milk. Lbs.	—Butter Fat.— Per Ct.	Lbs.
October 11-31,	693.56	4.9	33.98
November	1,194.94	5.3	63.33
December	1,142.25	5.4	61.68
January	1,121.06	6.1	68.38
February	1,019.25	5.7	58.10
March	1,108.50	5.6	62.10
April	997.40	6.0	59.84
May	1,078.20	6.2	66.85
June	1,013.00	5.6	56.72
July	864.85	5.7	49.30
August	769.45	5.7	43.86
September	710.25	6.0	42.62
October 1-10,	162.05	6.0	9.72

This record was supervised in connection with the New Jersey Agricultural Experiment Station. Not only does the work of the year greatly exceed the requirements of the Register, but it is the best year's record of a cow of any breed in the world, where public supervision has been given same. It is equivalent to 789.2 pounds of butter, or an average of 2.16 pounds butter a day.

Mr. Jos. L. Hope, the able superintendent of Mr. Twombly's Florham Farms gives the following data as to the feed consumed by the cow during the year.

Bran	1726 lbs.
Gluten	833 "
Cotton seed meal	160 "
Linseed meal	134 "
Corn meal	58 "
Middlings	58 "

Total 2969 lbs., or 8 lbs. a day.

This record is certainly a credit to the cow and her owner, and to the careful management which Mr. Hope has given her.

WM. H. CALDWELL.

The Poultry Yard.

GRAIN FOODS FOR LAYING HENS.

With the object of comparing the values of different kinds of grain as foods for laying hens, some interesting experiments have been carried out during the past few years under the direction of the Technical Instruction Committee of the Cornwall Co. Council. Thirty pullets were selected and divided into six pens of five birds each. The nature of the food given to each pen of five pullets and the number of eggs laid is shown in the statement below:

Food.	No. eggs laid in 12 months
Half maize and half oats.....	732
Wheat	723
Maize	648
Two-thirds oats and one-third maize.....	633
Oats	545
Barley	447

Broadly speaking, all the pens which received maize held relatively better positions during the last nine months of the experiments than in the first three. The pen fed on wheat laid seventy-one eggs more than either of the other pens in the first three months, but fell to second position with only four eggs more than the pen fed on maize in the last nine months, and eighty-four less than those fed on half maize and half oats. Though wheat lost ground relatively to certain other foods, during the latter part of the experiment, it was considered not improbable that it might generally prove, as shown in the experiment, the better food during the first three months of the year. This point appeared to be of such importance that arrangements were made to continue the experiments in the first three months of 1903, with the three pens Nos. 1, 5 and 6, around which special interest centered. The results of these latter experiments are shown below:

Food.	No. eggs laid in 3 months.
Maize	117
Wheat	128
Half maize and half oats.....	184

It is held that if the results of these experiments are adverse to the adoption of any theory as to the proper ratios of nitrogenous to non-nitrogenous substance, they throw some light on the question as to the value of the different grains. This is especially true of barley and oats when used alone. Pen 4, with one-third maize substituted for the oats, laid eighty-eight eggs more in the twelve months than Pen 3, fed on oats only, and when the percentage of maize was still further raised to one-half, the difference in the

number of eggs laid in the twelve months was no less than 187, or 34 per cent. in excess of the number laid in the pen fed on oats alone.

Oats, therefore, proved an admirable poultry food when mixed with an equal weight of maize, but the value of this mixture was reduced when the proportion of oats to maize exceeded one-half. The superiority of this mixture over all other foods in these experiments is emphasized by taking the figures for the year ending 31st of March last. In this period, Pen 1, wheat alone, yielded 561 eggs; Pen 6, maize alone, yielded 546 eggs; and from Pen 5, mixture of half maize and half oats, 701 eggs were obtained.—The Farmers' Gazette.

EGG-LAYING BREEDS COMPARED.

One of the most elaborate egg-laying competitions on record was recently brought off in Australia. In this test, which was conducted under government auspices, over 40 lots of pullets competed. Each lot of birds was provided with a pen of 6 feet by 5½ feet, where the birds were kept and fed for six months. The prizes were offered both for number and weight of the eggs produced; an account was kept of the cost of feeding as well as the market value of eggs.

The 246 hens competing averaged 57 eggs per hen, but the largest number laid was by a variety known as the Imperial, each hen of this breed producing 71 eggs. Six pens of Silver Wyandottes averaged 70; eight pens of Black Orpingtons, 65; and five lots of Buff Orpingtons but a few points below, nearly 65; then followed Buff Wyandottes, White Leghorns, Golden Wyandottes, White Wyandottes, and White Orpingtons, the older breeds—the Andalusians and the Minorcas—coming last with less than 40 eggs.

So much for the breeds, but when we come to individual pens of birds we find that the black Orpingtons took the first place; a lot of six pullets at seven months old at starting laying 548 eggs, averaging 26 ounces to the dozen; Silver Wyandottes at eleven months old laid 519 eggs, weighing 23 ounces per dozen; the remaining breeds producing eggs weighing two ounces each, with the exception of the Anconas, whose eggs weighed 26 ounces to the dozen. It is worthy of notice that throughout the whole of the competition the value of the eggs laid was \$1.56 per hen, which after deducting the cost of the food left a profit of 88 cents each, the winning Black Orpingtons realizing a profit of \$2.18 per head. Nine pens of birds laid less than 400 eggs in the six months; the most productive month being September, followed by July and August, corresponding with our March, January and February.

The Horse.

NOTES.

At Montezeuma Farm, the country place of City Sergeant James C. Smith, in Henrico county, near the city, the horses are doing nicely. Trainer M. F. Hanson has them in charge. The stable includes Clarion, 2:15 $\frac{1}{4}$, b. g., by Russell Rex, d. Helice, by Norval; Estuary, 2:19 $\frac{1}{4}$, ch. h., by Expedition, 2:15 $\frac{3}{4}$, dam Wavelet, 2:24 $\frac{1}{4}$, by Belmont; Eliza Ingram, 2:20 $\frac{1}{4}$, ch. m., by John R. Gentry, 2:00 $\frac{1}{2}$, dam Blondette, dam of Governor Holt, 2:15, by Leland; Hulman, 2:20, br. g., by Quartermaster, dam Winnie D., by Hannis; Miss Thompson, 2:20 $\frac{1}{2}$, br. m., by Toodles, Jr., dam Primrose, by Hetzel's Hambletonian; Luminant, h. m., 3, by Hummer, dam Lizzie Mills, by B. Homer; Zack, ch. g., 4, by Sidney Prince, 2:21 $\frac{1}{4}$, dam Thrift, dam Admiral, 2:17 $\frac{1}{4}$ and of Willie Shaw, 2:29 $\frac{1}{4}$, by Meander; Dr. Floyd, b. g., 5, by Sidney Prince, dam, the dam of Albert C., 2:16 $\frac{1}{4}$, by Clay; bay colt, 1, by Toodles, Jr., dam Virginia Cooper, by Bourbon Baron, second dam Virginia Maid, dam of Mosul, 2:09 $\frac{1}{4}$; Ginger, ch. m., 4, by Guy Fly, dam Virginia Cooper; Ephraim Toodles, b. c., 4, by Toodles, Jr., dam Baby Dean, by Willis, and Flower, bay mare, pony, by Toodles, Jr.



Ephraim Toodles, the bay colt, four years old, by Toodles, Jr., 25291, dam Baby Dean, by Willis, 12223, son of Jay Bird; bred and owned by James C. Smith, is probably held in higher regard than any other trotter in the Montezeuma Farm stable. Mr. Smith has owned and campaigned Mosul, 2:09 $\frac{1}{4}$; Roster, 2:12 $\frac{1}{4}$, and a score of others with fast marks, but this scion of the Toodles family on the score of good looks, speed, steadiness and disposition, comes nearer the ideal at Montezeuma than all the rest. Weighted down by a name likely to handicap the average performer Ephraim Toodles trotted the Deep Run Hunt track in 2:20 last season as a three year old and came the last half, which is an uphill grade, in 1:07 $\frac{1}{2}$, and finished strong at that. C. A. Pusey drove him. The youngster has not been handled this season, but will be jogged regularly during the winter and go into active training again next spring, when if he keeps right much is expected of him. Baby Dean, the dam of this colt, was bred by Mr. Joseph Bryan at Laburnum Farm, as was the second dam Jennie Dean, by King Bolt, son of Lexington, by Boston; and Zopyra, the third dam, by Staunton, son of Red Eye, also, by Boston, while the fourth dam was Jennie Dean, a daughter of Boston.



Baby Dean, the dam of Ephraim Toodles, was rid-

den through the war by Mr. Bryan and was noted for her endurance. Rather a remarkable feature in the pedigree of Ephraim Toodles is that he traces directly to Boston 4 times through his dam, while through the sire, Toodles, Jr., a son of Odin Bell, 1409 and from Kate Flight, by Red Hawk, son of Red Eye, he gets another cross to that famous son of Timoleon. This is breeding which will doubtless be approved by those partial to copious infusions of thoroughbred blood.



George M. Harden, of Raleigh, one of the best known of North Carolina horsemen, has returned home after quite a successful campaign through the Maryland, Virginia and North Carolina circuits of fairs and race meetings. With Petronel, 2:19 $\frac{1}{4}$, by Expedition, 2:15 $\frac{3}{4}$, dam Petrol, by Onward, he won the last six races in which she started and the big chestnut mare is still eligible to the 2:20 class. The bay mare Amyline, record 2:30 this season, purchased not long since of Richard Cromwell, Jr., Baltimore, has trialed in 2:20 $\frac{1}{4}$ and seems likely to trot fast with further development. She has raised two colts. Amyline was sired by Egwood, 2:18 $\frac{1}{4}$, dam the great brood mare Virginia Maid, dam of Mosul, 2:09 $\frac{1}{4}$, etc., by Sam Purdy. The bay gelding Sweet Hector, by Director, dam Sweet Alca, by Alcazar, is being driven on the road. John Trotwood Moore, the Tennessee bred pacer, bay stallion, 4, by Hal Wooldridge, worked a mile in 2:22, quarters in 31 $\frac{1}{2}$ seconds, but was not started this season, but was kept over and should do to campaign in 1904.



Robert Bradley's stable of runners has done pretty well at Chicago this season, being credited with winning about \$13,000. Racing for the season has ended at the "Windy City" and the stable is now at the Benning track, Washington, D. C., taking part in the meeting of the Washington Jockey Club. Peter Paul, the two year old son of Aloha and Eminence, by imp. Kkyrle Daly, who was such a consistent winner during the early part of the season, is being given a well earned rest and Mr. Bradley looks upon him as the winner of the Chicago Derby for 1904. From Washington the stable will be shipped to the Bradley Farm, Wilcox Wharf, Va., and wintered there. Among Mr. Bradley's yearlings, most of whom are by Aloha, the sire of Robert Waddell, are some prospects and from the lot he looks for several real good ones, probably the equal of Peter Paul.



The Virginia Polytechnic Institute Riding Club

has recently been organized at Blacksburg, Va., and its future outlook is bright. Later this organization will be most likely merged into a hunt club. Dr. J. G. Ferneyhough, the State Veterinarian at Blacksburg, is president; Prof. Bolton McBryde, vice-president; Maj. T. G. Wood, secretary and treasurer. Among those who ride with the club are Professors McBryde, Wilson, Dabney, Moncure, Ferneyhough, Dr. Ferneyhough, Mr. Dabney, Cadet R. E. Ferneyhough, Maj. Wood, Mrs. Rasche and Misses Virginia and Pickett Heath, Ethel Lockwood, Susie McBryde and Maude Lacy. Dr. Ferneyhough, president of the club, has recently purchased for a hunter, the handsome thoroughbred gelding by Eric, dam Gipsev Girl, and changed his name from Commonwealth to Tempest.



A very prominent performer on the great Harlem River Speedway, New York, is the chestnut gelding Angelus, 2:12 $\frac{1}{4}$, a Virginia bred trotter, who was foaled in 1891 and made his record at Cleveland in 1896. This tall son of the dead pacing stallion Whitby, 2:18 $\frac{1}{4}$, and Winnifred, by Brennan, thoroughbred son of Orion, was bred by the late Thomas M. Hewitt, of North Bend Farm, near Weyanoke, on the James river, and was always speedy from his yearling form up. Neilson, grand dam of Angelus, produced the big bay gelding Roy, 2:30, the only standard performer to the credit of Carlos, the son of Crottendon that formerly headed the stud of the late Col. J. L. Carrington. Neilson was sired by Star of the West, son of Curles, by Revenue, and back of this thoroughbred infusion came a cross of Morgan blood.



Jay Boy, 31144, the big bay stallion by Wilkes Boy, owned by E. A. Woodell, formerly of Danville, Va., but now of Atlanta, Georgia, is in winter quarters near the latter city. Jay Boy trotted a trial in 2:15 $\frac{3}{4}$ in 1902, but trained off and was never able to show his true form in a race. The son of Wilkes Boy, however, made good this fall and won a couple of races during the same week at Birmingham, Ala., in October and trotted to a record of 2:22 $\frac{1}{4}$. Jay Boy was foaled in 1894 and bred by J. W. Bethell, of Sharp, N. C., who owned his dam Lena Wilkes, a daughter of Jay Bird and Patchena, by Mambrino Patchen, 58.



Mr. A. B. Gwathmey, of New York, has sold to E. E. Taylor, Washington, D. C., the fast trotter Forney, 2:19 $\frac{1}{4}$; bred on the Eastern Shore of Virginia, and sired by Sidney Prince, dam by Bendee. When just right this horse can show a half close to one minute and has stepped shorter distance at even faster rate of speed. Mr. Gwathmey was not over anxious to part with Forney, but owning Tiverton, 2:11 $\frac{1}{4}$; Senator Mills, 2:12 $\frac{1}{4}$, king of the Harlem River Speed-

way, and other crack performers, he consented to dispose of the Sidney Prince gelding.



The stable of steeplechase horses, eleven in number, owned by the former Virginians, Messrs. A. B. and J. Temple Gwathmey, father and son, of the Cotton Exchange, New York, who race under the non de plume of "Mr. Cotton," has been sent to Canada to be wintered. The Messrs. Gwathmey's stable includes the well known brown gelding Eophone, 6, by imp. Rigolette, dam Vestalia, by Tom Ochiltree, bred by Robert Neville, Welbourne, Va.



Sidney Clay, bay gelding, 4, bred on the Eastern Shore of Virginia, and sold during the summer from Foxhall Farm, Norfolk, Va., to E. E. McCargo, of Philadelphia, is showing up well in his work, having recently shown miles close to 2:15. This horse was sired by Sidney Prince, 2:21 $\frac{1}{4}$, dam Miss Clay, by Clay, the son of Walker Morrill. He is highly thought of by Mr. McCargo, who found him very erratic in the beginning, but has now gained his confidence and looks for the gelding to go very fast in 1904.



"West Cairns," the picturesque home of the young authors, students of pedigrees and breeders of thoroughbred horses, Kenneth Browne and H. B. Boone, near Charlottesville, has been leased by its owners for a couple of years. Mr. Browne has removed to New York to continue literary work, and Mr. Boone goes to Italy, where he will study art. Messrs. Browne and Boone own the stallion Chiswick, son of imp. Mr. Pickwick, and some choicely bred brood mares and colts.



White Oak Maid, the high stepping trottingbred mare, with whom Mr. Reginald Vanderbilt captured several prizes at the New York Horse Show, was purchased during the past winter by Mr. Vanderbilt from Jack Spratley, Dendron, Va. The latter obtained the mare in Kentucky and brought her to his farm in Sussex county, Va.



At the fall meeting of the Los Angeles Racing Association, Los Angeles, Ca., the Virginia thoroughbred sires, Eon and imp. Water Level, were each represented by winners of the races. Eon heads the stud of Capt. R. J. Hancock & Son, while Water Level is premier at the Annita Stud, of A. D. Payne.



The Ellerslie bred filly, Chanterelle, 4, by imp. Charoxus, dam Ada Belle, by Eolus, has won several races at Latonia this fall. Chanterelle started in a number of races during 1903, winning three and finishing second and third in some half dozen others.

BROAD ROCK.

Miscellaneous.

THE GREAT ROANOKE FAIR.

Editor Southern Planter:

Although rather late a few words should be published in the Southern Planter in regard to the first fair of the Roanoke Industrial and Agricultural Association, which was held at Roanoke, Va., on October 23-24. We had expected the editor of your valuable journal to accompany Governor Montague to the fair, and to have had the pleasure of reading an account of this great exposition of Southwestern Virginia's resources from his smooth-flowing editorial pen. In this, however, we were all disappointed; and then in the following week, after all the accounts and expenses, including premiums, had been settled, it was too late to send a report for publication in your November issue.

It may be said, however, that the fair was a great success in every respect. Certainly, financially, for a profit of several thousand dollars was made. We doubt if a better attended fair was ever held in Virginia. The grounds were thronged every day, and immense audiences heard Senator Daniel, on Thursday, and Governor Montague on Saturday.

The horse display comprised horses for breeding purposes, standard-bred trotters, heavy drafts, saddle horses, coach and carriage horses, light draft, trotting-bred non-standard, dray, express and fire horses, family carriage horses, horses for business and pleasure, saddle horses, roadsters, ponies, mules, jacks and jennets.

Virginia and West Virginia were represented in the cattle department by their choicest specimens of the beef breeds. S. W. Anderson, of Greenbrier county, West Virginia, showed his fine Ingleside herd of pure-bred Hereford cattle, at the head of which was the noted bull, "Van."

Shorthorn, Aberdeen-Angus and Hereford cattle were exhibited by the Agricultural Department of the Virginia Polytechnic Institute, of Blacksburg, Va., through the courtesy of D. O. Nourse, Professor of Agriculture. The thoroughbred bull, "Governor Tyler," which drew first premium over seven herds at the district fair held this fall at Radford, Va., headed the Shorthorns from this institution, which also had on exhibition the thoroughbred Aberdeen-Angus bull, "Fife."

Registered Holstein-Friesian cattle were shown by C. T. Lukens, B. P. Huff and Joseph A. Turner. At the head of the herd of registered Herefords, entered

by Haynes L. Morgan, of Saltville, Va., was the fine bull, "Marmaduke." There were also a number of head of Jersey, Devon, Ayrshire, Guernsey and other dairy breeds on exhibition.

For cereals, root crops, vegetables, fruit, plants and flowers, as also for poultry, large tents were provided, the time having been too short for the erection of buildings. The display in each of these departments was creditable.

In a room, 50 by 150 feet, under the grand stand, were the art and domestic departments.. The former in addition to paintings, drawings, crayon work, etc., included needlework and embroidery. The domestic department embraced bread, cakes and pastry, butter, preserves, jellies, honey and vegetables and fruit in glass jars, as also home-made wines and cordials. These departments were in charge of ladies, by whom the room had been most elaborately and beautifully decorated.

Agricultural implements and machinery, farm wagons, plows, traction engines, portable saw-mills, farm gates and fences and miscellaneous farm necessities covered several acres in the northeastern corner of the grounds. The leading manufacturers of the country were represented.

The races—trotting, pacing and running—were very attractive, and the large grand stand, the quarter-stretch, and every advantage point from which the hotly contested races could be seen, were crowded. O. M. C., a Baltimore horse entered by William Nicholson, of Greensboro, N. C., established a track record of 2:15½ for the new course. An unfortunate accident occurred in the seven-eighths mile dash, when the chestnut mare, "Flat Denial," owned by O. E. Jordan, of Dublin, Va., broke a leg and had to be killed.

The ladies' and gentlemen's riding contests were exceedingly interesting events. Eight ladies, of the best families of that section of Virginia, competed in the former. The blue ribbon, which carried with it prizes of over \$100 in value, went to Miss Louise Price, of Botetourt county, a most graceful rider. Miss Verta Phelps, of Cave Spring, took second; and Mrs. Cosby, of Roanoke county, third. Colonel W. W. Berkley, a dashing rider, was awarded the blue ribbon in the gentlemen's contest, with Dr. Bragg second.

The undersigned, who came from Pennsylvania to officiate as manager, had the benefit of the liberality and indefatigable energy of the officers and executive

committee, so indispensable to the achievement of success. It was their perseverance and co-operation that resulted in the equipment of the new fair grounds in the almost incredible time of six weeks. In that time the grounds were enclosed with a 14-foot high fence which measured one and a half miles around; a first-class half-mile track was constructed; a commodious grand-stand, with seats for 1,600 persons built, several hundred horse stables and cattle stalls provided, the box stalls for the trotting horses being especially fine; and macademized walks were laid out all over the place. But, then, the weather was very favorable, there having been rain only twice, and then at night, during the six weeks.

The officers and executive committee who labored so hard to bring about success, and who are deserving of particular commendation, are as follows: President, James P. Woods; Vice-President, Edward L. Stone; Secretary, W. L. Andrews; Treasurer, R. H. Angell, and R. H. Angell, A. L. Sibert, Louis Scholz, J. H. Wingate and Henry Scholz, members of the Executive Committee.

CYRUS T. FOX.

[Pressure of business prevented our attendance at the fair much to our regret. We congratulate the Society on the success achieved and Mr. Fox (a tried old fair veteran) on his excellent management.—ED.]

COLD STORAGE ON THE FARM.

Editor Southern Planter:

The ice house I shall describe is built in a hillside of such a slope that the first floor is on the level of the surface and the second floor a few feet above the surface at the other side. Where such a situation is not convenient the second floor can be approached by a bridge. The basement is used for storing fruit.

In localities where field stone is plentiful the cellar can be cheaply built by using the stone in cement, making a ground wall. Broad 2-in. planks were held in place by substantial staging to form a box having a width of 18 inches. Into this box the dry stones were placed. Small stones may be shovelled in. After getting a layer 10 inches thick, *thin* mortar composed of good lime and cement was poured in until the box was filled. The operation was repeated, moving the planks upward as the mortar set until the desired height had been built.

Sills 8 inches by 12 inches were placed flatwise on these walls on which studding 2 by 6 inches was toe-nailed. The studding was weather boarded on the outside and lined closely on the inside with inch boards. This constituted an air chamber 6 inches wide around the entire building. Studding 2 by 4

inches was toe-nailed flush with the inner face of each sill and closely lined with 1-inch boards. As the inner surface was being lined sawdust was filled between the inner and middle lining, thus forming another non-conductor of external heat.

The upper story of the building is used for storing ice, thus cooling the air in the top of the building which sinks and in turn cools the rooms below. This is the general principle that governs the construction of all storage houses that depend on ice for the production of a low temperature. This second story is divided into two rooms, one of which is the ice storage room in which the supply of ice is stored and the other is the ice chamber, in which is held the ice that cools the refrigerating room directly below it. A door—there are two doors, one above the other in the partition dividing the upper and lower rooms—in the ice chamber communicates with the outside. This is double, having both air and sawdust chambers, and is flared as are the doors of a fire-proof safe. It is used for unloading ice and is the only outside entrance into the second story. The refrigerating room in the first floor is the compartment in which the temperature is to be reduced and in which perishable products are to be stored. Leading into this room is a cooling room which is to be used as a general purpose storage cellar. A small entrance room protects the doorway leading into the cooling room. This is the only entrance to the first floor.

The flooring is laid tight in the storage room and provided with a slope of 2 inches toward the center. To prevent leakage the floor of this room has a sheet iron covering. In the ice chamber adjoining, the floor is laid with 2 by 4's set on edge with 1-inch spaces between. This provides for air circulation and water drainage. The sloping floor beneath leads the water into a gutter which carries it down and out through the cooling room. The floor structure of the second story must be strong and well braced so as to carry the heavy load placed upon it. Heavy staging carrying 2x12 inch joists will give ample support for the ice chamber and storage room.

The roof to the second story should be built so as to make it as near a non-conductor of heat as possible. Dead air spaces are the cheapest and most easily constructed non-conductors. This is essential in the ceiling as it has the double duty to perform of holding the cold in and keeping the heat out. A large attic is provided, roofed with shingles. Metal should never be used. The ceiling in the second story is provided with ventilator shafts so that perfect ventilation can be secured during cold weather.

Where drain tile can be had what is known as a

V joint in the drain will provide for the escape of water and prevent the ingress of air. A box drain with an opening 2 inches square can be constructed where tile cannot be obtained by any ordinary mechanic. The V-shaped part is constantly filled with water and prevents the ingress of air. The drain is placed at such a slope that when the V becomes full the surplus flows from the ice house.

The ice pond is near the house, almost on a level with the top floor. In filling the ice is pounded so as to have as few air spaces as possible. After melting about 4 inches from the sides of the storage room the space is filled with sawdust and the ice should also be covered on top about a foot deep. In warm latitudes a grove to ward off the intense summer heat is desirable. If there is no grove plant about a dozen North Carolina poplars, a rapid growing tree, on the east, south and west sides.

GEO. H. C. WILLIAMS.

Washington, D. C.

CROWN GALL OF APPLE TREES.

The Virginia Experiment Station has been conducting investigation into this disease now common on nursery stock in this State. In the course of the investigation the station has clearly ascertained that trees of the finest vigor yield readily to the attacks of the disease. Observation of recently planted orchards show that it is not usual for trees showing an attack of the disease to form a normal root system. The root system is weak and confined to the surface. Such trees can be readily shaken thus revealing lack of depth of the root system. The Mycologist is also of opinion that badly diseased trees such as are now very commonly found in nursery stock will not ordinarily come into fruiting. The conclusions reached are as follows:

1. The organism which produces the abnormal growth known as crown gall on the apple appears to gain entrance to the apple seedling in the nursery.

2. The diseased seedlings can be detected by inspection. The unusual amount of fibrous roots at and below the crown being the characteristic depended upon for recognition of the trouble.

3. Nurserymen can select the seedlings used so as to largely control this trouble. No one should expect to entirely prevent its occurrence in the nursery now that it has become so wide spread.

4. Persons planting fruit trees should reject with the greatest care all trees which show the cancerous growth about the crown or a sufficiently abnormal development of fibrous roots about the crown to warrant belief that the plants are diseased. One should not

confound the knots caused by wooly aphids with this disease.

5. Apparently, crown gall can be readily inoculated from a diseased plant into healthy ones, hence diseased plants should not be allowed to remain among healthy ones in the orchard. Cultivating the orchard may possibly serve to spread the disease by carrying diseased tissue from one tree to another, but we have not definite date to cite in support of this proposition.

WM. B. ALWOOD,

Exp. Station, Blacksburg, Va. Mycologist, etc.

GOOD ROADS.

WASHINGTON, D. C., Nov. 19, 1903.

Congressman W. P. Brownlow, of Tennessee, to-day reintroduced in the House his well known good roads bill. Acting on the criticisms of opponents and the suggestions of friend, Colonel Brownlow has revised the bill somewhat, but all the important features have been preserved. The new bill appropriates \$24,000,000 to be used as a fund for national aid in the improvements of highways. This sum is made available during the next three years, at the rate of eight millions annually. No State or sub-division thereof can secure any part of this fund without raising an amount equal to the share received. The distribution among the several States and territories is to be made on an equitable basis so as to leave no room for "log-rolling." In reference to the bill, Colonel Brownlow said to-day:

"I think my good roads measure has made wonderful progress during the past year. Conventions all over the country have endorsed it, and a number of State legislatures have adopted resolutions in favor of it. The number of public men who have come out for it has exceeded my highest expectations. In the West and South the sentiment for the bill is especially strong. A large number of Senators and members from those sections have assured me of their willingness to support the measure, and it will also have some strong support from the Eastern States where State aid has paved the way for National aid. I can't see how any man representing a rural constituency can vote for a river and harbor bill and refuse to vote for my bill. And I don't see how any one who wants the rural free mail delivery extended in his State or district can refuse to support a measure to aid in improving the roads, for bad roads are almost the sole obstacle to such extensions. I am hopeful of getting the bill up for discussion in the House early in the regular session."

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PUBLISHER'S NOTES.

TO ADVERTISERS.

All advertisements and matter pertaining to advertising must reach us by the 25th of each month. Please bear this in mind.

Our January Issue.

Our January issue will be as usual our annual holiday number. It will be gotten up in specially designed covers, and every department will be full of seasonable and interesting matter. In addition to this, we are going to make it somewhat of a biographical number. It is our intention to show the faces and give a brief sketch of the foremost agricultural leaders and teachers of the present day. We are sure that it will be very interesting for our readers to see "what manner of men" these teachers are.

As the edition will be quite large, it will naturally be a very attractive proposition to advertisers, and we ask all of our friends to send us in their ads at the earliest possible date. Do not wait till the last minute, as every year we are compelled to leave out a goodly number.

IMMUNE HEREFORDS.

We will sell at Auburn, Ala., on February 3rd, 1904, 50 head of registered Herefords under the management and auspices of the Alabama State Experiment Station. This sale will be held in their barns especially fitted for the occasion. The cattle have already been shipped there for inoculation and can be seen there from now on by intending purchasers. They are being thoroughly inoculated against the tick fever by the State Veterinary Board, and will be perfectly immune by the sale date.

We are sending 30 bulls and 20 females, which carry the blood of all of the leading sires of the day. About half of them are sired by the record priced Acrobat or are by his best sons. The rest are by such bulls as the \$10,000 Crusader, the \$2,000 Conquerer, the \$1,000 Earl of Carlemont, the great Earl of Shadeland 73rd, the prize winning Beau Rowland, and other such noted sires. A few of the females will be in calf to our record breaking Champion bull Britisher, the greatest bull of two continents.

This consignment is a pick of four

WOOD'S FARM SEEDS.

The Standard For Quality....

We carry the largest stocks and do the largest business in Farm Seeds in the Southern States. This, together with our twenty-five years' practical knowledge of the seed business, enables us to supply seeds of the highest quality at as reasonable prices as good seeds can be sold.

Prices of Farm Seeds, Seed Grain, Seed Potatoes, etc., quoted on request. Catalogue giving descriptions and full information about all seeds mailed free.

T. W. WOOD & SONS,
Richmond, - Virginia.



"How to Grow Paper-Shell Pecans,"

FREE. Best varieties in U. S. True to variety. Clones cut from bearing trees by member of firm. Full descriptive Catalogue of ALL FRUIT trees, free.

B. W. STONE & CO., Thomasville, Ga

Alfalfa Bacteria Infected Soil

Can be obtained from Ewell Farm Experimental Plot. A perfect stand three years of age, abundantly supplied with root nodules. Price \$1.00 per 2 bus. burlap bag, weight about 150 lbs., f. o. b. Ewell's Station, Tenn.

GEO. CAMPBELL BROWN,
Spring Hill Tenn.

1,000,000 Cabbage Plants at \$1.50 Per M.

EARLY JERSEY WAKEFIELD,
CHARLESTON, SUCCESSION and
"FOTTLER'S IMPROVED BRUNS-
WICK."

50,000 Dahlia and Canna Bulbs.

MARK T. THOMPSON, Rio Vista, Va.

EXCELSIOR STRAWBERRIES.

The great "moneymaker" in its superior carrying qualities and beautiful red color make it very popular in all the big markets. I have millions of plants of this and other varieties now ready. Send for free catalog today.

W. F. ALLEN, Salisbury, Md.

of the best herds in Kentucky and is the choicest lot of cattle ever sent South both as to individuality and breeding. Experts who have examined them at Auburn, pronounce them a wonderful lot and good enough to be used in any herd in the United States.

Our experience with the Southern farmers convinces us that they appreciate good cattle and the only drawback has been the fearful losses from fever. Even cattle that have been raised in the tick infested districts frequently succumb to the scourge when moved from one place to another. Experience and science have demonstrated that the one absolute preventive and guarantee against this disease is inoculation. The cattle we offer for sale at Auburn, Ala., February 3rd, are immuned from fever by careful and thorough inoculation, by the State Board, and can be seen by those interested, at the Experiment Station, running with tick infested cattle.

The State of Alabama sent Dr. C. A. Cary up to Kentucky looking for pure bred cattle and he was so well pleased with our cattle that we sold him four choice calves. While here Dr. Cary was so impressed with the scale and finish of our Kentucky Herefords that he persuaded us to send this consignment South, as according to his judgment we have just what the Southern farmers need to improve their herds with.

Parties interested in good live stock will do well to note the date of this sale and wait till then for purchases. At that time spring will almost be here and the care and expense of wintering will be saved. Bear in mind that this consignment is not a lot of Southern range bred stuff but the best that Kentucky, which is famous for the best, can raise.

Handsomely illustrated catalog and descriptive matter will be sent on application to Giltner Bros., at Eminence, Ky., or Auburn, Ala.

\$100 REWARD, \$100.

The readers of this paper will be pleased to learn that there is at least one dreaded disease that science has been able to cure in all its stages and that is Catarrh. Hall's Catarrh Cure is the only positive cure now known to the medical fraternity. Catarrh being a constitutional disease, requires a constitutional treatment. Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system, thereby destroying the foundation of the disease, and giving the patient strength by building up the constitution and assisting nature in doing its work. The proprietors have so much faith in its curative powers, that they offer one hundred dollars for any case that it fails to cure. Send for list of testimonials.

Address,

F. J. CHENEY & CO., Toledo, O.

Sold by druggists, 75c.

Hall's Family Pills are the best.



Hey! Santa, where's that

STEVENS

Don't disappoint the boy at Christmas-time—buy him a rifle or shotgun and teach him how to use it properly. Tempt him to a fresh-air life. Let him feel the wholesome influence of the finest sport in the world. Train his eye and steady his hand before a target or make his blood run faster in the hunt for game.

SEND FOR OUR FREE BOOK OF 128 PAGES
It tells about the "Stevens," gives pictures and prices. Contains articles on Hunting, Fishing, Canoeing, Target Shooting, etc.

Send 4c. in stamps for a teasing RIFLE PUZZLE. It is lots of fun—"easy when you know how," but everyone can't solve it. Can you? Address Puzzle Dept.

We make Rifles, Shotguns, Pistols, from \$2.50 to \$150.00.
Most good dealers will sell you a "Stevens"—some will try to talk you into taking a poor kind because they can make more money on them. Look out! A gun is the safest thing in the world if well made, but a poor gun is a good thing to leave alone.

We make a specialty of these Rifles:
"Stevens-Maynard, Jr." \$3.00
"Crack Shot" \$4.00
"Favorite" No. 17, \$6.00

We will sell to you direct (and pay the express charges) if your dealer won't supply the "Stevens"

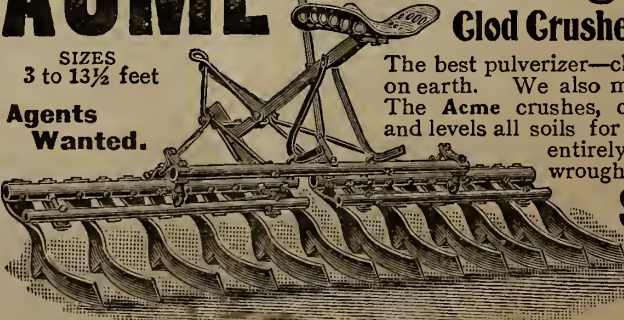
J. STEVENS ARMS AND TOOL CO. 921 Main St., Chicopee Falls, Mass.

ACME Pulverizing Harrow

Clod Crusher and Leveler.

SIZES 3 to 13½ feet

Agents Wanted.



The best pulverizer—cheapest Riding Harrow on earth. We also make walking ACMES. The Acme crushes, cuts, pulverizes, turns and levels all soils for all purposes. Made entirely of cast steel and wrought iron—indestructible.

Sent on Trial

To be returned at my expense if not satisfactory. Catalogue and Booklet. "An Ideal Harrow" by Henry Stewart, mailed free.

I deliver f.o.b. at New York, Chicago, Columbus, Louisville, Kansas City, Minneapolis, San Francisco, Portland, etc.

DUANE H. NASH, Sole Manufacturer, Millington, New Jersey.

Branch Houses: 110 Washington St., Chicago, 428 1st St., Minneapolis, 6th & Washington Sts., Kansas City.

PLEASE MENTION THIS PAPER.

STAR PEA HULLER

WONDER OF THE AGE

Guaranteed to hull and clean 10 to 15 bushels of peas per hour by hand, or 20 to 30 bushels by power. Write for circular and prices.

STAR PEA MACHINE CO.,
...Chattanooga, Tenn.

SAWS ANY WOOD IN ANY POSITION ON ANY GROUND 4 in. to 5 ft. Through

1 MAN with a FOLD-ING SAWING MACHINE BEATS 2 MEN with a Cross-cut Saw
5 to 9 cords daily is the usual average for one man. **SAWS DOWN TREES**
No Backache weighs only 41 lbs. **EASILY CARRIED**

Our 1904 Model Machine saws faster, runs easier & will last longer than ever. Adjusted in a minute to suit a 12-year-old boy or the strongest man. Send for catalog showing latest improvements. First order gets agency. Folding Sawing Mach. Co. 55 N. Jefferson St., Chicago, Ill.

The Cahoon Is Practical.

That's why it has lived and grown for 45 years, saving seed and making money for hundreds of thousands of farmers. Runs easy, sows uniform, sows as high as 50 acres a day. This year we are sending out absolutely free a

SEED SOWER'S MANUAL, telling how, when & what to sow. Write for it.

Goodell Co., 63 Main St., Antrim, N. H.

Save Cream

Save much on the cost, save labor of cleaning and operating by buying the

AMERICAN CREAM SEPARATOR.

We send to you to put it on trial. It will prove these things to any man's satisfaction. You should know about it. Ask for the free catalogue.

American Separator Co. Box 1076, Bainbridge, N. Y.

AN INSTANT'S PAIN and the dehorning job is smoothly done, no crushing or bruising if the

KEYSTONE

Dehorning Knife

is used. Easy, sure and most speedy in operation. No evil results can follow. Cuts from four sides at once. Endorsed by veterinarians. Guaranteed. M. T. Phillips, Box 45, Pomeroy, Pa.



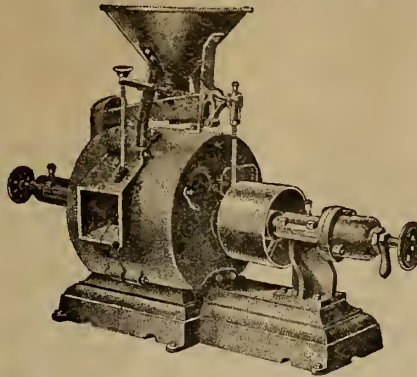
LATEST (Newton's Patent.)

DEHORNER Every Dehorner Guaranteed

THOUSANDS IN USE. Ask your hardware dealer for them or write I. H. BROWN MFG. CO., - - DECATUR, ILL.

MONARCH FEED MILLS.

At this season of the year a subject of great interest to the farmer and feeder who studies economy in feeding is the feed mill. There are numerous mills advertised in agricultural papers, all making practically the same claims as to speed, capacity, ease of running, etc. Among so many the feeder may well be confused when it



comes to making a choice. The Monarch is manufactured by Sprout, Waldron & Co., of Mundy, Pa. It has speed, capacity, strength and lasting qualities. It grinds coarse, medium or fine, just as desired. It is alike perfectly at home in the matter of making a fine article of meal for household purposes, and for the grinding of ear corn, shelled corn and all the feed grains either singly or mixed, for chop feed. These Monarch Mills are either of the attrition pattern or are made of the famous French burr stone, than which there is nothing better for the purpose in the world. The manufacturers publish an elegant catalogue which shows its strong points in striking fashion. The advertisement running in another column gives correct address.

GERMAN IMMIGRANTS.

Those interested in the development of the resources of the South are, to some extent at least, conversant with the methods employed by the Southern Railway Company in advancing the material growth of the country served by its lines. For several years past that company has made special effort to attract to the South a desirable class of German immigrants. While this work is one that requires time, labor and patience, the results have been fairly satisfactory, and several settlements of that class of people have been established along the lines of the Southern Railway.

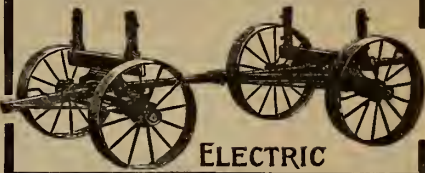
The success achieved by the company has convinced it of the wisdom of redoubling its efforts, and it has decided to wage an active campaign, having for its purpose the location of a larger number of thrifty German farmers along the line. There is no better class of emigrant than the thrifty German farmer and such a settlement is always an important factor in the growth and development of the section of country in which it is located.

Wise Man's Wagon.

The man who has had experience in running a wagon knows that it is the wheels that determine the life of the wagon itself. Our

ELECTRIC STEEL WHEELS

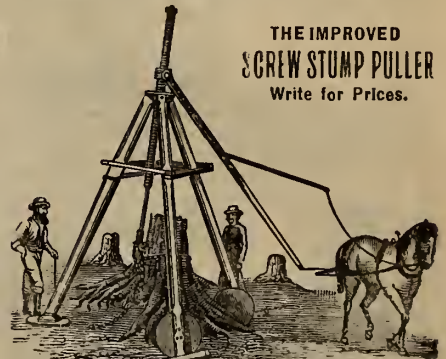
have given a new lease of life to thousands of old wagons. They can be had in any desired height, and any width of tire up to 8 inches. With a set of these wheels you can in a few minutes have either a high or a low down wagon. The Electric Handy Wagon is made by skilled workmen, of best selected material—white hickory axles, steel wheels, steel hounds, etc. Guaranteed to carry 4000 lbs. Here is the wagon that will save money for you, as it lasts almost forever. Our catalog describing the uses of these wheels and wagons sent free. Write for it. ELECTRIC WHEEL CO., BOX 146 QUINCY, ILLINOIS.



WE'LL PAY THE FREIGHT

and send 4 Buggy Wheels, Steel Tire on, - \$7.25 With Rubber Tires, \$15.00. 1 mfg. wheels 1/2 to 4 in. tread. Top Buggies, \$28.75; Harness, \$5.66. Write for catalogue. Learn how to buy vehicles and parts direct Wagon Umbrella FREE. W. V. BOOB, Channah, @

THE IMPROVED SCREW STUMP PULLER Write for Prices.



Chamberlin Mfg. Co., Olean, N. Y., U. S. A.

HERCULES STUMP PULLER



Clears an acre of heavy timber land each day. Clears all stumps in a circle of 150 ft. without moving or changing machine. Strongest, most rapid working and best made.

Hercules Mfg. Co., 413 17th St., Centerville, Iowa.

STEEL ROOFING

100 SQUARE FEET \$2.00

Painted two sides; nails included. Strictly new, perfect, Semi-Hardened Steel Sheets, 6 feet long. The best Roofing, siding or Celling you can use. No experience necessary to lay it. An ordinary hammer or hatchet the only tools you need. Either flat, corrugated or "V" trimmed. Write for our Free Catalogue No. 166 on Farm Supplies, Furniture, etc. CHICAGO HOUSE WRECKING CO., W. 35th & Iron Sts., Chicago

NO HUMBBUG

Swiss V. Stock Marker and Calf Dehorner. Stops aino from rooting. Makes 48 different ear marks. Extracts Horns. Price \$1.50. Send \$1 for trial. If results, send balance. Paid Nov 6, 1902. Hog and Calf Holder only 75c. GEORGE BOOS, Mfr., FAIRFIELD, IOWA.





No Money In Advance.

We will send any responsible farmer a

DITTO'S FEED GRINDER

Triple Geared, Ball Bearing, to test on his own farm. Grinds ear corn and all small grain. If it is not the easiest running, with largest capacity, don't keep it. It is strong and powerful—a time saver and a money maker. Send for circulars and full particulars.

G. M. DITTO, Box 48 Joliet, Ills.

The Southern Railway Company will soon publish an illustrated pamphlet in German, the object of which will be to give reliable information concerning each of the Southern States tributary to its lines to all Germans considering the question of change of location. This pamphlet will be followed by other publications giving general information about this territory which it is thought will be the means of attracting the attention of thousands of German to the South.—M. V. RICHARDS, Southern R. Co., Washington.

RICHARD BAXTER.

A tale of New England life, time about 1830, is the title of a new novel just issued. This is written by our old friend, the Hon. Edward F. Jones, of Binghamton, ex-Lieutenant Governor New York, but better known to our readers as "Jones, He pays the Freight." This is one of the most entertaining books of the day, and will carry old Yankees back home in their memory. It is brim full of sentiment, humor and pathos. Real characters, not caricatures. We predict for it a wider sale than any novel for many years. It is published by the Grafton Press, New York. 12 mo., 350 pages, 16 illustrations, finely bound, \$1.50. All booksellers, or postpaid by mail.

BLACKLEG.

Stock raisers have become convinced that Blackleg can be prevented by vaccination, and the question is, what kind, what form, and what make of vaccine is the best? The Pasteur Company's powder form of vaccine is the best known, as it has been in use for nearly twenty years and it is the original preparation, the only drawback being the troublesome syringe outfit. However, the cord or string form of vaccine introduced some years ago by the Pasteur Company is the most convenient and has become the most popular as it is always ready for use. Its application is very easy and it has proved to be as good as the old powder form. The cord form is generally known under the short name of "Blacklegine." Both the Pasteur Powder Vaccine and Blacklegine are furnished for single treatment for ordinary stock, and for double treatment for fine stock. The double treatment costs 20 cents per dose in packages of 10 doses, with reductions for quantity, while the single treatment costs from 15 cents down to 10 cents per dose, or even less, according to quantity. All stock raisers in blackleg districts know that it pays to use the best and original vaccine furnished by the Pasteur Vaccine Company, Chicago and San Francisco.

A neat Binder for your back numbers can be had for 25 cents. Address our Business Office.

Mention the *Southern Planter* when corresponding with advertisers.



You Try It.

It costs nothing. Return at our expense if this mill fails to grind shelled corn, ear corn, all grains or mixed feed stuffs, easier, faster and better than any other.

New Holland Mills

are the practical, every day mills for every day wants. No other good mill at so low a price. Made in 3 sizes. Adapted to any kind of power. Don't fail to get our free catalogue before buying.

NEW HOLLAND MACHINE CO., Box 163, New Holland, Pa.

See it Work!

Any responsible party may try on his own premises for 15 days and return at our expense if not the best.



MONARCH French Burr and Attrition Mills

are farmers' mills. Meal or feed, corn on cob or small grains. Rapid grinders, all sizes. Write for free catalogue for particulars.

Sprout Waldron & Co. Box 202, Muncy, Pa.



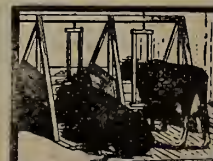
HEEBNER'S FEED CUTTERS.

Feed all your fodder. By using Heebner's cutters with shredder attachment the whole of the nutritious stock is cut, crushed and shredded, and rendered edible. No waste. Animals eat it greedily and thrive. Shredder attachment costs \$5.00. The model ensiles cutter. Also make Tread Powers. Lever Powers, Little Giant and Penna. Thrashers, Wood saws, Feed Mills, etc. Catalog free. HEEBNER & SONS, 25 Broad St., Lansdale, Pa.

WELL DRILLING MACHINES

The most successful money-making machines ever made. Also machines for boring wells with augers by horse power. Write us if you mean business.

Loomis Machine Co., Tiffin, Ohio.



WARRINER'S CHAIN HANGING STANCHION.

CLEAN, SAFE, COMFORTABLE.

MFG. BY W.B. CRUMB Forestville, Conn.



GET ALL THE CREAM,

—BY USING—

The SUPERIOR CREAM SEPARATOR.

Does not mix water with the milk. It is the best Separator made. A trial convinces, and every Separator is guaranteed. Write today for Catalogue to the SUPERIOR FENCE MACHINE CO., 291 Grande River Ave., Detroit, Michigan.

Leave Off Chopping, wasting your time and strength. It is easy work—turning the wood pile into money or keeping up your own fires with

Freeman's Wood Saws.

Easy, perfect working machines of varied patterns and right prices. We also make the famous Freeman Windmills, Corn Shellers, Feed Cutters, etc. Ask for our catalogue 110

S. FREEMAN & SONS MFG. CO., Racine, Wisconsin.

A Bushel In Less Than 3 MINUTES.

That's the way your feed will be ground when you use the

KEYSTONE

Triple Gear GRINDING MILL.

Built as strong as an anvil. Burrs are of hard white iron. Boxes and gey irons furnished with mill. Capacity of mill from 20 to 30 bushels per hour. We are making a special introductory price now. Write for the catalogue and prices on the full line. Corn shellers, planters, cultivators, feed cutters, etc.

Keystone Farm Machine Co., 1554 Beaver St., York, Pa.

MIXED FEED

Unhusked corn, husked ears, shelled corn and all grains broken, crushed and ground in one operation by

KELLY DUPLEX Grinding Mills.

Speediest, easiest running mills made. Double breakers, double set of burrs. 4 sizes for all powers. Force feed, never choke. Get free catalogue.

THE O. S. KELLY CO., Springfield, Ohio.

Make Your Own Fertilizer

at Small Cost with

Wilson's Phosphate Mills

From 1 to 40 H. P. Also Bone Cutters, hand and power, for the poultrymen; Farm Feed Mills, Graham Flour Hand Mills, Grit and Shell Mills. Send for catalogue. WILSON BROS., Sole Mfrs., Easton, Pa.



Five Baskets or Three

A planter who can make five baskets of cotton where he formerly made but three, by simply Top Dressing his land with one hundred pounds, per acre, of

Nitrate of Soda

(The Standard Ammoniate)

is simply neglecting to reap full benefit from his soil if he does not use the Nitrate, for this result is within the reach of every Cotton Planter.

Equally profitable results may be obtained from corn, grass, tobacco or potatoes, from fruits or garden products, in fact from anything that grows. "Food for Plants," and other valuable bulletins giving actual field trials with Nitrate of Soda at Agricultural Experiment Stations, are sent free to farmers. Send name and address on Post Card. William S. Myers, Director, 12-16 John St., N.Y.



ELMWOOD NURSERIES.

ASPARAGUS

100,000 2-yr. old Asparagus roots, 5 varieties. A special rate of \$3.50 per 1000 for 2 mos. for BARK'S, PALMETTO, CONOVER.

APPLES

A large general assortment, including WINESAPS and YORK IMPERIALS.

Splendid Assortment of Ornamental, Shade and Fruit Trees.

EGGS from B. P. Rocks, Light Brahmas, Brown Leg-horns at \$1.00 per 13.

WRITE FOR OUR CATALOGUE.

J. B. WATKINS & BRO., Hallsboro Va

Strawberry Plants,

All grown in fresh rich ground, healthy, well-rooted plants that will please you; over 30 kinds to offer. Raspberry plants and Peach trees also; see us before you buy. Our stock has been thoroughly inspected and found free from any disease.

Address JOHN LIGHTFOOT.

Sherman Heights Tenn.

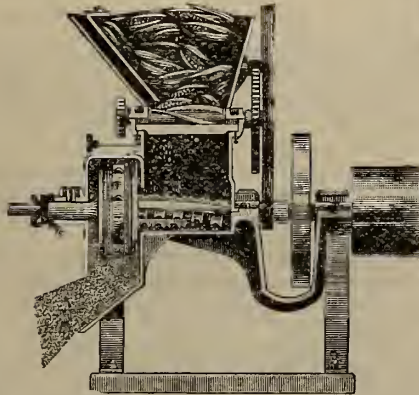
UNLIMITED QUANTITIES **RAW FURS** wanted For London January Sales. Opossum, Muskrat, Mink, Skunk, Raccoon and others. Highest cash prices paid. Write A. E. Burkhardt, Main & 2nd, Cincinnati, O.

THE AMERICAN CREAM SEPARATOR.

There are several things which make it advisable for intending purchasers to consider carefully the American Cream Separator advertised in our columns. First, is its reasonable price. A man with but two or three cows will find it worth while to own it and may soon get his money back. It is not only the cheapest of all good separators, but it is simple in the extreme, and easy to run and keep clean. Last, but not least, it is a clean, close skimmer. It gives such universal satisfaction, that the manufacturers, the American Separator Company, of Bainbridge, N. Y., will place it in any responsible party's hands for free trial, with no obligation to buy unless perfectly satisfied. Consult the company's advertisement elsewhere.

KELLY DUPLEX GRINDING MILL.

Rapid grinding is one of the characteristics of the Kelly Duplex Mill here shown. But it is only one. Most mill makers advertise mills to grind ear or shelled corn. This mill grinds both, and you may leave the husks on without fear of choking.



The illustration will show that it is not one of the flimsy, unsubstantial kind. The Kelly Mill has a double set of burrs. In reducing ear or unhusked corn, there are three processes, breaking, crushing and grinding, reducing the feed to any degree of fineness at the pleasure of the operator, and all in one operation. It grinds smaller grains, as oats, rye, etc., equally well. It has a feed regulating device and its grinding is always uniform. It is made in four convenient sizes, adapted to the needs of any feeder and suited to any power that may be desirable to use.

It is manufactured by the O. S. Kelly Co., Springfield, Ohio, (O. S. Kelly Mfg Co., Iowa City, Iowa,) who will be pleased to send you catalog fully describing it to any one writing for it.

A neat Binder for your back numbers can be had for 25 cents. Address our Business Office.

Mention the Southern Planter when corresponding with advertisers.

GRIFFITH & TURNER SEEDS

A Dollar's Worth For Every Dollar

No stale packet bargain offers. All fresh, plump, quick starting, every kind grown in the climate which matures it best, North, South, East, West.

Our General Supply Line

Includes tools, appliances, etc., for Farm, Garden, Dairy and Poultry. The varied lines keep our large force busy all the year and make attractive prices in our large general catalogue. Every standard appliance for the farm industries. Write us your wants. Be sure you get General Catalogue No. 10. It's FREE for the asking.

GRIFFITH & TURNER COMPANY, 205 N. Paca Street, Baltimore, Md.

Peach and Apple Trees,

BONAVISTA NURSERIES, Greenwood, Va.

We offer a fine lot of choice trees for Fall and Spring planting

Our apple trees are the best—Wine Sap, Mammoth Black Twig, York Imperial and Albemarle Pippin, all perfect and well grown trees.

Our peach trees are the standard sorts, Stump, Elberta, Bilyeu's (Comet,) Wonderful, Champion, Globe, Picquet's Late, Albright's Winter, Crawford E. & L., etc.

We send out none but good trees and have never had a complaint made by any purchaser of our stock. Order soon, especially Peach's, as good trees will be very scarce this season.

CHAS. F. HACKETT, Manager.

We offer all kinds of : —

..Nursery stock.

STRAWBERRY PLANTS at reduced prices; 1 doz. rooted GRAPE VINES of CONCORD, NIAGARA, WARDEN, etc., at \$1; all healthy stock and fumigated before shipped; grown on ideal land for fine roots and smooth bodies.

Send for Special Price to Planters.

EMPORIA NURSERIES

EMPORIA, VA.

No. 1 Agents wanted. We refer to any business house here as to our honesty.

TREES! TREES!!

I offer a fine lot of whole root trees.

Apples, Pears, Peaches, Cherries, Plums, Grape Vines. Raspberries, Etc.

Save agent's commission by sending your orders to the nursery.

CATALOGUE FREE.

All Stock Inspected and Fumigated.

WERTZ'S NURSERY, Salem, Va.

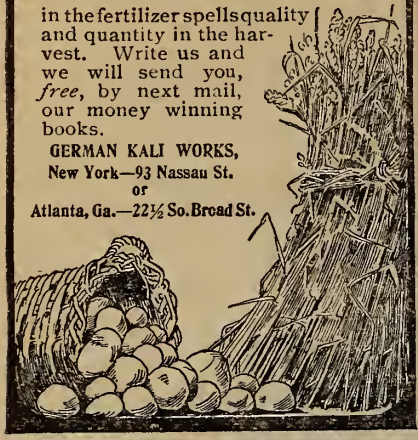
A Golden Rule of Agriculture:

Be good to your land and your crop will be good. Plenty of

Potash

in the fertilizer spells quality and quantity in the harvest. Write us and we will send you, free, by next mail, our money winning books.

GERMAN KALI WORKS,
New York—93 Nassau St.
or
Atlanta, Ga.—22½ So. Broad St.



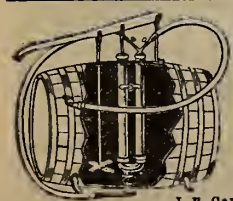
SAN JOSE SCALE

and other insects can be controlled by using

GOOD'S CAUSTIC POTASH
WHALE OIL SOAP. No. 3.

It also prevents Curl Leaf. Endorsed by entomologists. This soap is a fertilizer as well as insecticide. 50 lb. kegs, \$2.50; 100 lb. kegs, \$4.50. Half barrels, 270 lbs., at 3¼¢. per lb.; barrels, 425 lbs., at 3¼¢. Large quantities, special rates. Send for circular.

939—41 N. Front St., JAMES GOOD, PHILADELPHIA, PA



Defender Sprayer

All brass, easiest working, most powerful, automatic mixer, expansion valves, double strainer. Catalogue of Pumps and Treatises on Spraying free.

AGENTS WANTED.
J. F. Gaylord, Box 82 Catskill, N. Y.

Book of Bugs Free.

Send us your name and that of your druggist and we will send you free of charge a copy of our Book of Bugs, illustrating and describing the destructive worms and insects that damage your crops. The edition is limited and you must write for it to receive it. Very valuable as a book of reference. THE PROTECTO COMPANY, 129 West First Ave., Monmouth, Ill.

Best Fruit Paper 25c. year.

Send 25c and names of 10 farmers who grow fruit and you will receive for a year the "Fruit-Grower," best fruit paper published, reg. price 50c year. Fruit-Grower has 16 to 64 pages monthly, illustrated, clean, devoted entirely to fruit culture. Prof. Price, Dean Ohio Agt. College, says: "Fruit-Grower is best fruit paper we have, East or West." J. H. Hale, Connecticut, says: "Fruit-Grower is a mighty good paper—one of the very best." For sample, etc., address

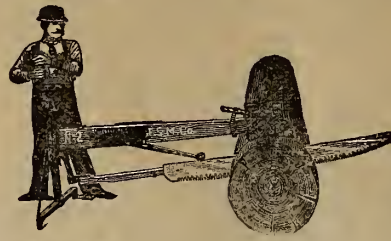
FRUIT-GROWER CO., 312 S. 7th Street, St. Joseph, Mo.

Hunters' & Trappers' Guide

300 pages, cloth bound, illustrating all fur animals. All about trapping. Trappers' Secrets, all kinds of traps, decoys, &c. Special Price \$1.10 for shippers postpaid. We buy Raw Furs. Hides. Price List free. ANDERSON BROS., Dept. 817, Minneapolis, Minn.

THE WOOD CUTTER'S MACHINE.

The man who follows the time honored custom of sawing wood will find a piece of machinery that will save him great labor in the Folding Sawing Machine pictured here. It is manufactured by a company of the same name in Chicago and is regularly advertised in our columns. This machine takes the place of the old time



cross cut saw. It can be used in any situation where the cross cut can be used, and its great value is seen in this, that one man can saw more wood with it than two men can with the old cross cut saw. It has a record of nine cords of wood in a single working day by one man. It is not only adapted to sawing felled trees, but to sawing down trees. It is so adjusted that the operator is not at all discommoded whether working on the fallen log, the standing tree, on the hillside, etc. When through with one job it can be folded up in compact form, "like a jack knife," placed on the shoulder and carried off to other work. Any one interested should consult the advertisement elsewhere for correct address and write to the company for catalog and full information.

A FEED MILL GUARANTEED.

The New Holland Cob and Feed Mill, manufactured by the New Holland Machine Works, New Holland, Pa., is one of the mills that depends on its own work to sell it, and is therefore, freely sent forth to responsible parties on trial. With the opportunity to make test of its worth at the buyer's own home goes a remarkable guarantee of the manufacturers, which shows the faith they have in its adaptability and superior working qualities. This guarantee says that it may be tested freely on ear corn, shelled corn, small grains and all feed stuffs, and that it must establish the fact to the proposed buyer's satisfaction that it will do the work "easier, better and faster than any other mill." Failing to sustain such a broad challenge, it is no sale, and the mill can be returned at the company's expense.

This broad guarantee covers most satisfactorily just those things required in a feed mill. It does not seem possible for one to go wrong with the added opportunity to put it to the test. It is made in three sizes, and is adapted to the use of any kind of power.

Anyone contemplating the purchase of a feed mill, should at least send for this company's catalog and make investigation before placing an order.

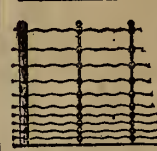
UNION LOCK POULTRY FENCING



HAS BEEN FULLY TESTED AND FOUND SUPERIOR TO ALL OTHERS.

Will fit uneven ground without cutting. Every part can be stretched perfectly. Made of high grade galvanized steel wire. All horizontal lines are cables, making it stronger. Has fine mesh at the bottom for small chicks. We also make extra heavy for gardens, lawns, etc. The largest poultry farms are using this fence—over 700 rods by Lakewood (N. J.) Farm Co. We pay freight and satisfy every one or no sale. Can ship from N. Y., Chicago, or San Francisco. Write for free catalog of Farm, Lawn and Poultry Fencing.

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Genuine Spiral Spring Wire FENCES AND GATES

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INTERNATIONAL FENCE AND F. CO.
Columbus, Ohio.



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SENT ON TRIAL

A Fence Machine that will make over 100 Styles of Fence and from 60 to 70 rods a day AT ACTUAL COST OF WIRE. High—high, Ball—strong, Pig and Chicken—light. Wire at Wholesale Prices. Catalogue Free. Kitzelman Bros. Box 165 Muncie, Ind.



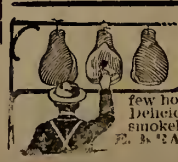
FENCE! STRONGEST MADE.

Bull—strong, Chicken—tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free. COILED SPRING FENCE CO., Box 63 Winchester, Indiana, U. S. A.

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Iron and paper roofing, nails, builder's hardware, sash, doors, etc., carriage and wagon goods, paints and oils, cook and heating stoves, guns, pistols, rifles, "Robin Hood" loaded shells. Do you use any of the above? Write us.

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Smokes meat perfectly in a few hours. Made from hickory wood. Delicious flavor. Cleaner, cheaper. No smokehouse needed. Send for circular. F. B. KAUSER & BROS., Milton, Pa.

A neat Binder for your back numbers can be had for 25 cents. Address our Business Office.

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60 different games—one in each package of
Lion Coffee

The Southern Planter.

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Can Be Cured By

DR. DUGNAL'S

FAMOUS NERVE PILLS.

40 DOSES BY MAIL, POSTPAID, 50c.

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FRAZER
Axle Grease Best in the world.
Its wearing qualities are unsurpassed, actually outlasting 3 bxs. any other brand. Not affected by heat. **Get the Genuine.**
FOR SALE BY ALL DEALERS.

THE KEELEY INSTITUTE
GREENSBORO, N.C.
For the treatment of THE LIQUOR, OPIUM, MORPHINE and other Drug Addictions. The Tobacco Habit, Nerve Exhaustion

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Shippers of POULTRY of all Kinds, Dressed HOGS, GAME, etc., to write to

E. W. EVANS & CO.,

1313 E Cary St., RICHMOND, VA.

For prices before shipping elsewhere.

HOW TO FEED AND BREED HOGS
is of importance to swine growers. A practical, clean, common-sense swine paper for farmers can be had from now to January, 1905, by sending 10 Cents in Silver at once to
BLOODED STOCK,
Oxford, Pa.

HANDSOME FRUIT PAPER.

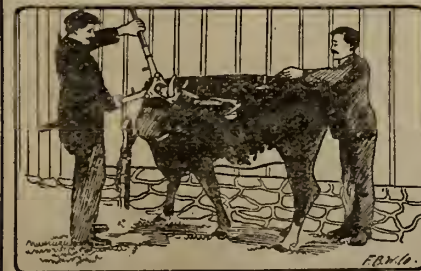
In this issue appears the advertisement of "The Fruit Grower, St. Joseph, Mo., one of the very best fruit papers published. Indeed, Prof. Price, dean of the Ohio Agricultural College, says it is the very best fruit paper published, East or West. The advertisement tells how the paper can be secured at half price. Look it up and send for this paper.

HANDY LOW DOWN WAGONS.

The Electric Wheel Company of Quincy, Illinois, has perhaps done more than any other one institution to popularize the low wheel and handy wagon. Their "Electric" Steel Wheel is the kind that is made to last. An item that has multiplied the number they are constantly sending out is that they are made to fit the skein of any make of wagon. The wheels being the first to give way in the wooden fellow high wheel style of wagon, a great many farmers take advantage of this fact and procuring the "Electric" wheels, convert their old wagons into Handy Wagons. In most cases the running gears are good and with little expense they secure a wagon as good as new, with all the conveniences which the use of the low down Handy Wagon carries with it. If any reader of this finds his old high wheels giving away, he will do well to send to the above company for their catalog and learn what their low steel wheel will do in the way of giving him practically a new wagon at but very slight cost. It must not be forgotten that the company makes the best Handy Wagon complete where parties desire it.

THE PHILLIPS DEHORNING KNIFE

The dehorning knife has come to be almost a stable necessity to the dairyman and cattle feeder. There are several knives on the market and perhaps Pomeroy, Pa. Its great point of advantage is that it cuts from all four



sides at once, and thereby secures a clean, clear cut that is all cut and no breaking or crushing. Several of the government experiment stations have given it unqualified endorsement. The acting Director at Cornell University commends especially its "ease of operation and durability," and describes it as "the best instrument of its kind that we have ever used."

Mr. Phillips advertises the dehorner regularly in our columns. Any one interested should write him for a copy of a little descriptive book he sends out free.

Cheap eggs are as good as cheap lamp-chimneys.

MACBETH.

If you use a wrong chimney, you lose a good deal of both light and comfort, and waste a dollar or two a year a lamp on chimneys.

Do you want the Index? Write me.

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WANTED

By a married man, a POSITION as manager on stock, dairy or general farm. Thoroughly competent, and best references. Box 41, Espy, Pa.

POSITION WANTED AS FARM MANAGER or Superintendent of large estate by a middle-aged single man, with practical and educational experiences in farming, dairying, cattle, sheep, swine, horticulture and poultry culture.

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Charlottesville, Va.

WANTED A GOOD, SETTLED MAN WITH small family to attend to 5 or 6 cows, make butter, and attend to family garden. Must understand cultivation of flowers. Place open until December. Address,

MIRADOR, Greenwood P. O., Va.

THE PEACH GROWER

Fruit Culturist and Trucker's Magazine

Published Monthly, Atlanta, Ga. Is indispensable to growers of fruit and truck. Best horticulturists in the land are regular contributors. Handsomely printed and illustrated. Send 25 cents and names of 25 fruit growers, for a year's subscription. You can't afford to miss reports of Georgia experiments now being made on peach orchards.

WANTED!

ALL KINDS OF

LIVE WILD BIRDS AND ANIMALS

Particularly Deer, Wild Turkeys, White Squirrels, Ducks, Swans, Bob White Quail, Grey Squirrels, Bear, Etc.

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NO MORE BLIND HORSES—For Specific Ophthalmia, Moon Blindness and other Sore Eyes. **BARRY CO.,** Iowa City, Ia., have a cure.

HOMES AND THE PLACE TO FIND THEM.

No place in the United States can a man do so well at farming, for the money invested, as in Virginia. Lands are cheap; climate good, and the best of markets close at hand. It is the State of all others, for a comfortable all the year round home. The James River Valley Colonization and Improvement Company offer superior advantages to land purchasers. For free 36 page land pamphlet, address

W. A. PARSONS, Vinita, Va.
C & O Main St. Depot Richmond, Va.

..To Homeseekers.. "THE BUSINESS OF FARMING IN VIRGINIA."

Is the title of a new pamphlet issued by the Norfolk and Western Railway Company. We will gladly mail you a copy.

W. B. BEVILL, PAUL SCHERER, Agt.,
G. P. A., Lands and Immigration,
Roanoke, Va.

I HAVE A LARGE LIST OF

FRUIT, POULTRY and TRUCK FARMS

Ten, Fifty and One Hundred Acres each, with good buildings, close to steam and trolley lines, easy access to the city. Also,

GRAIN AND STOCK FARMS

From 100 to 1,000 acres at low prices—all the way from \$5 to \$50 per acre. Write for Catalogue.

J. R. HOCKADAY, Richmond, Va.
Box 257.

IF YOU WISH TO SELL —OR BUY— VIRGINIA LANDS

Communicate with us. Write for free "Virginia Real Estate Journal," containing many splendid bargains.

R. B. CHAFFIN & CO., Inc.,
No. 1 N 10th St., Richmond, Va

2 GOOD DAIRY FARMS,

Vicinity of Washington FOR SALE.
Electric railway through one and near the other. For particulars, address

L. E. WALT, 745 7th St., S E,
Washington, D C.

I Can Sell Your Farm....

If located in one of these Virginia counties: Prince George, Chesterfield, King William, Gloucester, New Kent, King and Queen, Hanover. Send description, stating price.

JOHN JELINEK, 1116 Pine Alley,
Braddock, Pa.

FINE FARMS in the great fruit grain and stock section of VIRGINIA. Best climate and water in the U. S. Near great markets, with best educational advantages. For further information, address

ALBEMARLE IMMIGRATION CO.,
SAM'L B. WOODS, Pres Charlottesville, Va

Go South.

For full particulars write
A. JEFFERS,
Norfolk, Va.

FERTILIZER CHEMICALS.

Quotations furnished by Edmund Mortimer & Co., of New York, on agricultural chemicals commonly used by farmers. These prices are those at which the goods can be purchased in lots of one ton or over, in original packages, delivered f. o. b. cars at New York City, and are for cash. In all cases carload lots of any one of the materials can be purchased for less money, and, if possible, farmers should combine and order in round lots.

AMMONIATES.

	Per ton
Nitrate of Soda, containing about 16 p. c. of Nitrogen, in bags, weighing about 200 pounds....	\$45
Sulphate of Ammonia, containing about 20 p. c. of Nitrogen, irregular weight packages	65
Dried Blood, containing about 10 p. c. of Nitrogen, irregular weight packages	40
Tankage, containing about 8 p. c. Nitrogen and 10 to 12 p. c. Phos. Acid	35

POTASHES.

Muriate of Potash, containing about 50 p. c. of Potash, in 225 pound bags	40
Sulphate of Potash, containing about 50 p. c. of Potash, in 225 pound bags	45
Kainit, containing about 12 p. c. of Potash, in irregular weight packages	12
Nitrate of Potash, containing about 45 p. c. Potash and 13 p. c. Nitrogen (Ammonia).....	70

PHOSPHATES.

Acid Phosphates, containing 14 p. c. Available	12
Containing 16 p. c. Available...	13
Bone Meal, containing about 3 p. c. Nitrogen and 20 p. c. Phos. Acid	22
Peruvian Guano, containing about 20 p. c. Phos. Acid, 3½ p. c. Nitrogen, 4 p. c. Potash, in 200 pound bags	30

MIXED.

"Everybody's Magazine" tells a little story which shows the mixed feelings with which the Southerner regards Booker T. Washington. An old Florida colonel recently met Booker T. Washington, and in a bibulous burst of confidence said to the negro educator, "Suh, I'm glad to meet you. Always wanted to shake your hand, suh. I think, suh, you're the greatest man in America."

"Oh, no!" said Mr. Washington.
"You are, suh," said the colonel; and then, pugnaciously, "Who's greater?"

"Well," said the founder of Tuskegee, "there's President Roosevelt."

"No, suh," roared the colonel. "Not by a jugful! I used to think so, but since he invited you to dinner I think he's a blank scoundrel."

QUARTZ and MICA grinding mill for sale on railroad; list of 500 customers. Close to millions of tons of quartz, feldspar and mica section.

G. G. TEMPLE, Danville, Va.

VIRGINIA FARMS

\$3 PER ACRE AND UPWARDS.
EASY PAYMENTS. CATALOGUE FREE.
GEO. E. CRAWFORD & CO., Richmond, Va.
Established 1875.

"In the Green Fields of Virginia."

Homes for ALL; Health for ALL; Happiness and Independence for ALL. ALL sizes of FARMS at corresponding prices, but ALL reasonable.

MACON & CO., Orange, Va.

VIRGINIA FARMS

All prices and sizes. Free list on application.
WM. B. PIZZINI CO., RICHMOND, VA.

••• VIRGINIA FARMS •••
Nice little poultry farm, 100 acres, good house and orchard, \$500.00. Blue Grass, Stock and Fruit Farms. Address PORTER & GATES, Louisiana, Va.

"Crop Growing and Crop Feeding."

BY PROF. W. F. MASSEY.

383 Pp. Cloth, \$1.00; Paper, 50c.

We offer this splendid work in connection with the SOUTHERN PLANTER at the following prices:

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Bound Volume, \$1.25.

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Between all points, via Richmond, Va.

Fast Mail, Passenger and Express Route between Richmond, Fredericksburg, Alexandria, Washington, Baltimore, Philadelphia, New York, Boston, Pittsburg, Buffalo and All Points North, East and West.

W. P. TAYLOR, Traffic Manager, Richmond, Va.

FARMS FOR SALE!

No. 16.

130 acres—20 acres hardwood, balance in good state of improvement, and a splendid quality of red clay subsoil; 50 acres in wheat and timothy; 20 acres in meadow, balance is new land, and will be for corn next spring. Situated in excellent neighborhood of refined people. Twenty-two miles from Washington, 5 miles from Herndon Station. Fronts on pike. Comfortable 4-room house and all buildings. Farm watered by large branches. Price, \$20.00 per acre. Terms, to suit purchaser.

No. 17.

80 acres—15 acres in hardwood, balance in grass, except 20 acres for corn. Fronts on pike; 5 miles from railroad station. Watered by large branch. All in good state of cultivation. No buildings. Price, \$18.00 per acre. Easy terms.

No. 18.

385 acres in lower Loudoun county, only 23 miles from Washington; 40 acres in hardwood, balance in good state of cultivation, divided into 8 fields, with running water in all; well fenced; adopted to grain and grass. Two good cattle barns, a good, comfortable 7-room dwelling, with a large, bold spring within 50 yards, an all necessary outbuildings. Situated 4½ miles from Sterling Station. This farm has 137 fine stock sheep and 21 fat cattle weighing 1,200 pounds now; 80 acres sown in wheat and rye; 50 acres in meadow and balance of fields and pasture. If bought within the next 60 days the wheat and sheep will go with the farm. Price, \$8,000, on easy terms. Write for full description.

No. 19.

215 acres in upper Fairfax county, 20 miles from Washington; 6 miles from railroad; fronts on pike; near village with stores, post-office, churches and shops. Splendid brown chocolate clay soil. Seven fields, watered by branches and springs. A good 6-room frame house and all necessary farm buildings; 60 acres sown in wheat and grass; 25 in rye and grass; 30 in meadow, balance in pasture and for corn—all in good condition. Price, \$25.00 per acre; one-third cash, balance on 6 years' time, if desired.

No. 5.

Contains 163 acres; one-half under cultivation; balance in second-growth timber. Good seven-room dwelling and necessary outbuildings; good orchard in fine fruit section. Farm lies near Southern railroad, twenty miles from Washington; well watered; a splendid dairy farm. Price, \$2,000.

Farm No. 2.

Contains 265 acres; 215 under cultivation; 50 acres original oak and

hickory. Fronts on the pike running from Winchester to Alexandria; five miles from railroad; one-half mile from proposed electric railroad. Excellent six-room dwelling house, with broad halls, standing in a large, nicely-shaded blue-grass lawn; all necessary outbuildings; land chocolate clay, with stiff clay subsoil; all level, but rolling enough to drain well; fine for wheat and grass; well watered. Owner contemplates making improvements. But if sold before, price \$25 per acre, on easy terms.

I have a number of other good farms for sale, both large and small. Write for description and state just what you want, and will be glad to serve you.

W. E. MILLER, Herndon, Va.

LIGHT ON A DARK SUBJECT.

"I see by the newspaper," says Smith, "that the whale that swallowed Jonah was recently killed in the Mediterranean, and in its stomach they found, written on parchment, the diary that Jonah kept during the three days——"

"You can't make me believe any of that stuff," interrupts Brown. "In the first place, how could Jonah see to write his diary?"

"Why," says Smith, "don't you suppose the whale had pains in his stomach?"—*November Lippincott's.*

CANT-HOOK VS. STEAM.

Before the introduction of the steam log turner in its practical application to the portable saw mill, the owner of such a rig worked at a very serious disadvantage as compared with the larger mill and its labor-saving devices.

There has been one cause of wasted time and labor in the operation of the portable mill that has heretofore been unavoidable. This was the necessity of waiting at every occasion for turning the log on the carriage, while anywhere from one to three men "wrestled" it over with cant-hooks. In the meantime, the engine was running idle. However, the perfection of a really practical log turner has been accomplished by the A. B. Farquhar Co., makers of the celebrated Farquhar Portable Mills and the Ajax Centre Crank Engines. This is the only device of its kind that can be used with a portable mill. By increasing the daily output without the necessity for an increase of power and at an actual decrease in operating expense, it very materially swells the net profits. Any mill man interested in the most recent and up-to-date improvements in engines and saw mill machinery should write the A. B. Farquhar Co., Ltd., York, Pa., for further information and free catalog. It pays well to keep posted.

Mention the *Southern Planter* when corresponding with advertisers.



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tells why our machine is preferred by users and all about artificial incubation. There's pointers that may mean dollars to you. We pay freight. Guarantee goods as described or money back. The book is free. Write for it to-day. Postal will do. GEO. ERTEL CO., Quincy, Ill.



EASY MONEY

is made by installing a Hawkeye Incubator. Little cost, little care, results sure, profits large. 30 Days' Free Trial. Catalogue free. Mention this paper.—Hawkeye Incubator Co., Box 49, Newton, Iowa.

CHICKS THAT LIVE

get strong and healthy—gain steadily in weight, are chicks hatched in Reliable Incubators.

The Reliable

provides automatically a constant current of odorless, warm air at a uniform temperature—chicks pip, hatch and thrive under its nature-like conditions. Send 10 cents and get our 30th annual catalog—full of poultry information. Reliable Incubator and Brooder Co., Box 8-11, Quincy, Ill.

BUILT TO LAST

Never outclassed—Sure Hatch Incubators. Built better than your house. No hot centers; no chilling draughts on sensitive eggs. Every cubic inch in egg chamber at uniform, blood temperature of fowl. It's a continual pleasure to hatch nearly every fertile egg with a Sure Hatch. Free catalogue, D. 35 with pictures tells lively story. SURE HATCH INCUBATOR CO. Clay Center, Neb. Indianapolis, Ind.

PINELAND

INCUBATORS hatch greatest number of finest chicks. BROODERS have never been equalled.

FIDELITY FOOD

—FOR YOUNG CHICKS—

Used everywhere by practical poultrymen and specialist fanciers with unfailing success. Insures perfect health and promotes rapid growth. Concise catalogue from

Pineland Incubator and Brooder Co., Box M. Jamesburg, N. J., U. S. A.

Little Chicks

thrive when fed on our

BABY CHICK FOOD.

A perfect balanced food. Send for free sample and our large illustrated catalog of POULTRY SUPPLIES.

INCUBATORS and

BROODERS.

FANCIERS' SUPPLY CO.,
517-519 West Broad St.,
Richmond, Va.

EVERYTHING FOR THE FANCIER.

CHARLIE BROWN, - Cartersville, Va.

BREEDER AND SHIPPER OF HIGH-CLASS—

Mammoth Bronze Turkeys, Barred Plymouth Rock Chickens, Embden Geese and Pekin Ducks. Young stock FOR SALE. My strains consist of the best blood that money can buy. Satisfaction guaranteed.

EDGEWOOD STOCK FARM.

Scotch Collies. White Wyandottes.
COLLIE PUPS ready, all with full, white marks, sables and blacks. Beautiful! Both parents trained. Best blood in America. Order quick. \$10, \$7.

WHITE WYANDOTTES—Best strains for laying and beauty. White Wyandottes are prettiest chickens on earth. We offer Cockerels and Pullets. You rarely find such Pullets for \$1. Get ten pullets and cockerel at special offer.
H. B. ARBUCKLE,
Maxwelton, W. Va.

OAKSHADE M. B. Turkeys and Huguenot W. Wyandottes,

—: FOR SALE :—

Raised on 400 acre blue grass farm—the best I have ever seen. Eggs from White, Buff and Partridge Wyandottes in season
Address **Huguenot Poultry Yards,**
... Dublin, Va.

FINE TURKEYS. "BRED FOR BREEDERS."

The Mammoth Bronze is the finest specimen of turkey in the world. I do not hesitate to say that I have the finest birds in Virginia. If you will file your orders now you will get choice ones out of a choice flock. I also have a few Barred Plymouth Rocks for sale. My fowls are all thorough bred. Write for circulars and rates.

PIEDMONT POULTRY PLACE,

Miss E. Calle Giles, Prop. - Whittle's Depot, Va.

FIRST CLASS FOWLS

—FOR SALE, CHEAP.—

Barred, Buff and White Plymouth Rocks, White Wyandottes, Light Brahmas, Buff and Partridge Cochins, Black Minorcas, Black Langshans, Brown and White Leghorns.

Now is the time to secure bargains.

OAKLAND POULTRY FARM,

C. J. WARINER, Mgr., RUFFIN, N. C.

FOR SALE.

Pure BARRED PLYMOUTH ROCKS, MAMMOTH BRONZE TURKEYS, TOULOUSE GEESE AND PEA FOWLS. Will exchange for good Berkshire or Poland-China pigs.
MRS. W. F. JACKSON, Olga, P. O., Amelia county, Va.

COCKERELS, (Wyckoff Strain.)**S. C. WHITE LEGHORNS.**

To make room I will sell at \$1.50 each. For prize winners write to

C. G. M. FINK, Rosneath Road,
Henrico county, Va.

BROWN LEGHORNS.

Young stock for sale in

Fall. Prices reasonable.

White Plymouth Rocks.

R. W. HAW, Jr., - Centralia, Va.

Bargains in FINE COCKERELS,

\$1.50 each for a short time to make room—82 best varieties. Large, illustrated Catalogue free for stamps. Write to-day.

VALLEY POULTRY FARMS.

J. E. HEATWOLE, Propr., Harrisonburg, Va.

THE PEST OF SPARROWS.

The government has again been giving some attention to the English sparrow and, while at this writing no definite statistics are obtainable, it is roughly estimated that there are upwards of a hundred million of the little feathered creatures in this country. The sparrows have long ago been voted a pest, but it was not until recently that strenuous efforts have been made toward their extermination.

"Equip the boys with the Stevens rifle," says a well known Washington official, "and the sparrow question won't be a matter of doubt very long."

This thought is right in line with the ideas that the J. Stevens Arms & Tool Co., of Chicopee Falls, Mass., the well known firearm makers, have been advocating for some time. The Stevens people have been urging the use of the small caliber rifle on farms where not only the sparrow, but woodchucks, squirrels, crows, hawks are also sources of nuisance.

As a general proposition it does seem reasonable to believe that a man or boy, armed with a "Stevens" and instructed in its use, could soon rid the neighborhood of the living crop destroyers at a small outlay and have a lot of fun himself while doing the work.

The clothespress is a swell affair for garments nice and neat; the hay press is a good machine and does its work complete; the cider press is lovely with its juice so red and sweet, but the printing press controls the world and gets there with both feet.

LEHMAN CARRIAGE HEATER.

The recent spell of keen weather has probably made many of our readers wish for some means of keeping their buggies warm, thereby adding to the comfort of enforced travelling. Lehman Bros., of New York, have solved this problem exactly in their Lehman Heater. This is a simple and cheap device, and serves the purpose for which it was intended most admirably. Look up the advertisement and send for catalogue and prices.

"It is said, though there is no evidence to substantiate the assertion, that a restaurant in Philadelphia alternates Scriptural texts with business epigrams, and that the result is something like this: "The Lord giveth and the Lord taketh away;" "Watch your hats and overcoats;" "Man shall not live by bread alone;" "Try our hamburger steak with onions, 20 cents;" "Take no thought for your life, what ye shall eat or what ye shall drink;" "Welsh rabbit and Lobster a la Newburg to order;" "The wind passeth over it, and it is gone, and the place thereof shall know it no more;" "We positively cannot be responsible for umbrellas or personal property."—*Ex.*

White Wyandottes, Buff Leghorns, Bronze Turkeys.

I can supply a few trios of White Wyandotte Cockerels and Pullets. Immediate delivery. Fine layers.

Buff Leghorn Cockerels of extra fine laying strain ready for delivery in November.

Bronze Turkeys in pairs or trios. All at reasonable prices.

One U. S. Separator in perfect repair. Capacity 350 pounds milk per hour. Cost \$125. Price, \$50.

A. R. VENABLE, JR.,
Milnwood Dairy Farm.

P. O. Box 147, Farmville, Va.

Barred and White**PLYMOUTH ROCKS**

Single and R. C. B. Leghorn, S. L. Wyandottes, Light Brahma and B. Minorca Cockerels for sale. \$1 per single bird; a trio for \$3.

J. B. JOHNSON, Clover Hill Farm,
Manassas, Va.

**SILVER-LACED WYANDOTTES.**

New blood, choice specimens, strong and healthy birds of fine plumage, ready for shipment at \$1.00 each. Also pure-bred POLAND-CHINA PIGS at \$5.00 each.

Dr. H. H. LEE,

Lexington, Va.

3 M. P. D. 5

The above stands for

TRIO MAMMOTH PEKIN DUCKS

\$5.00 as long as they last.

PERFECTION POLAND-CHINAS, PROTECTION DUROC JERSEYS,

Only the best is bred at The Cedars.

THE CEDARS,
P. & S. Farm.

W. G. OWENS,
Midlothian, Va.

—FOR SALE—

M. B. Turkeys, Pekin Ducks, White Wyandottes, S. C. B. Leghorns (the great Winter layers) and B. P. Rock chickens. Order Now, and get the best. Miss CLARA L. SMITH, Caroline Co. Croxton, Va.

Pure bred B. PLYMOUTH ROCK hens and pullets from a good laying strain. Also young Black Minorca Roosters.

MISS S. M. HITER,
Ellisville, Louisa Co., Va.

PURE-BRED

M. BRONZE TURKEYS, GOLDEN and SILVER PENCILED HAMBURG and BARRED PLYMOUTH ROCK Chickens. Eggs in season. For sale by T. J. WOOLDRIDGE, French Hay, Va.

MAMMOTH BRONZE TURKEYS

· FOR SALE Apply to

R. E. CREE Crozet, Va.

ANGORA GOATS are handsome, hardy and profitable. For large circular address E. W. COLE & CO., Big Clifty, Ky.

**STOCK LICK IT
STOCK LIKE IT**



**BLACKMAN'S
MEDICATED
SALT BRICK**

The only guaranteed Tonic, Blood Purifier, Kidney and Liver Regulator and aid of Digestion for all stock. A sure hit on worms. Ticks cannot live. No dosing, no drenching, and no waste of feed. Your horse his own doctor. Endorsed by thousands.

full descriptive circulars, testimonials, etc. address
Blackman Stock Remedy Co.
920 Highland Park, Chattanooga, Tenn.

**Lump
Jaw**



Save the animal—save your herd—cure every case of Lump Jaw. The disease is fatal in time, and it spreads. Only one way to cure it—use

Fleming's Lump Jaw Cure

No trouble—rub it on. No risk—your money back if it ever fails. Used for seven years by nearly all the big stockmen. Free book tells you more.

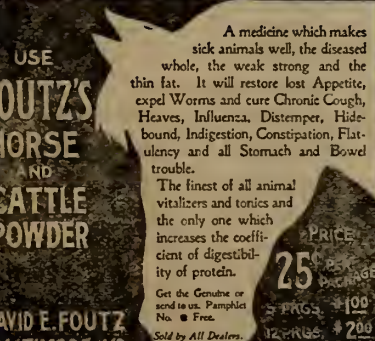
**Spavin
and Ring-bone**

Once hard to cure—easy now. A 45-minute treatment does it. No other method so easy—no other method sure.

Fleming's Spavin and Ringbone Paste cures even the worst cases—none too old or bad. Money back if it ever fails. Free illustrated book about Lump Jaw, Spavin, Ringbone, Strain, Leg Spavin, and other stock ailments. Write for it.

FLEMING BROS., Chemists,
280 Union Stock Yards, Chicago, Ill.

**USE
FOUTZ'S
HORSE
AND
CATTLE
POWDER**



A medicine which makes sick animals well, the diseased whole, the weak strong and the thin fat. It will restore lost Appetite, expel Worms and cure Chronic Cough, Heaves, Influenza, Distemper, Hiccough, Indigestion, Constipation, Flatulency and all Stomach and Bowel trouble.

The finest of all animal vitalizers and tonics and the only one which increases the coefficient of digestibility of protein.

Get the Genuine or send to us. Pamphlet No. 1 Free.
Sold by All Dealers.

**DAVID E. FOUTZ
BALTIMORE, MD.**

PRICE
25¢ PER 100
125¢ PER 1000
CHARGES PAID

**DEATH TO HEAVES
Guaranteed**



NEWTON'S Heave, Cough, Distemper and Indigestion Cure. A veterinary specific for wind, throat and stomach troubles. Strongly recommended. \$1.00 per can. Dealers. Mail or Ex. paid. Newton Horse Remedy Co., Toledo, Ohio.

WITH THE ADVERTISERS.

H. F. Coleman & Son, Mulberry Gap, Tenn., are offering some choice Aberdeen Angus cattle in this issue.

M. T. Thompson, Rio Vista, has for sale 1,000,000 cabbage plants and 50,000 dahlia and canna bulbs. Look up his ad.

C. E. Clapp, owner of the Rosemont Herefords, has a special announcement in this issue. He is offering some splendid young stock at bargain prices.

The Bowmont Farms have some choice Yorkshire pigs for sale. There are some 48 about ready for shipment. Look up the ad and send in your order at once.

H. Armstrong is offering Dorset sheep and Hereford cattle in another column. Some good stock at reasonable prices can be had here.

Wilson Bros. are advertising a splendid bone mill in another column.

C. E. Jones, Carysbrook, Va., has a splendid offering of Aberdeen Angus cattle.

Some splendid farms in Piedmont Virginia can be bought of W. E. Miller, who has a large ad on another page.

The Smith Manure Spreader is being offered to our readers again this season. Look up the ad.

The Huguenot Poultry Yards are offering some excellent stock at present.

The Sure Hatch Incubator ad makes its appearance in this number, this being its second season with us.

Mr. Wm. S. Myers, director of the Chilian Nitrate Works, has an ad in this issue, which will interest many of our readers.

Several parties are advertising for farm managers and several farm managers are advertising for positions in this number.

Mr. F. G. Hogan, the well-known Kentucky breeder, has a card in this number. Look up his ad.

Rosedale Stock Farm is advertising Aberdeen Angus in another column.

The Star Pea Huller is offered our readers in this issue. Look up the ad and write for prices.

The Newton Dehorne is advertised by the H. H. Brown Mfg. Co.

The Achme Harrow is offered to our readers again this season. Mr D. H. Nash, manufacturer, would like to send one out on trial to any one interested.

Look up the ad of the Cyphers Incubator Co.

Dorset Sheep and Collie Pups are advertised by H. B. Arbuckle. We invite attention to these ads.

Another new ad in this issue is that of E. W. Evans & Co., commission merchants, Richmond, Va.

Mr. Charlie Brown, Cartersville, Va., a new advertiser in this issue, won first prize on Bronze Turkeys, Embden Geese, and Pekin Ducks at the Richmond Poultry Show, now in progress.

Mention the *Southern Planter* in writing.

Horse Owners! Use

**GOMBAULT'S
Caustic
Balsam**

A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. Impossible to produce scar or blemish.

Every bottle sold is warranted to give satisfaction. Price \$1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland, O.

Mammoth Bronze Turkeys, Poland-China Pigs,

from best prize winning stock. Special prices for December.

Red Polled Cattle, Shetland Ponies.

A good saddle horse; fine jumper.

Arrowhead Stock Farm,

SAM'L B. WOODS, Prop., Charlottesville, Va.

THOROUGH-BRED....

Berkshire Boars, Dorset Buck Lambs, Jersey Bull Calves.

All stock in best of condition and guaranteed as represented.

F. T. ENGLISH, GUYS, Q. A. CO., Md.

FOR SALE.

Large English Berkshire Hogs, Barred Plymouth Rock Chickens

BEN. BOLT, 60747, 420 lbs. as a yearling at head of herd. EGGS IN SEASON.

JOHN P. FOSTER, Norecreek, Ohio Co., Ky.

.Berkshire Pigs.

M. B. Turkeys from prize winning strains. Barred and White Plymouth Rocks. W. F. FLANAGAN, Christiansburg, Va.

.BERKSHIRES.

A Few Boar Pigs For Sale.

By Mason of Biltmore II, (68548) from Registered sows—nothing but Biltmore blood in my herd. ROBERT HIBBERT, Charlottesville, Va.

Poland Chinas, Chester Whites and Mammoth Bronze Turkeys at Farmers prices

S. M. WISECARVER, Rustburg, Va.

HIGH GRADE ANGUS CATTLE.

Lucre of Glendale, 56156; Jetson 2nd of Clear Lake, 57994; Imp. Brignoli of Ballandalloch, will make herds famous.

Also other young stock for sale, suitable for beef breeding.

JOHN T. & G. B. MANLOVE, MILTON, Ind.

ANGUS BULL CALVES

Sired by the

Champion Bull BARON IDA.

These calves are choice individuals.

ENGLISH SETTER PUPS.

Sire and dam prize winners.

WARREN RICE, Winchester, Va.

H. F. COLEMAN & SONS,

MULBERRY GAP, TENN.,

—BREEDERS OF—

ABERDEEN-ANGUS CATTLE.

JANNET'S KING, 48271, greatest son of Valiant Knight II., 29331, first prize bull at all three of the International shows, heads the herd. Visitors and correspondence invited. Young things for sale.

FOR SALE a Farmer's Prices

A Choice Lot of Pure-bred

ABERDEEN - ANGUS

male calves from 6 to 9 mos. old, sired by a bull weighing over 2,000 lbs.

If you want to breed good beef cattle, you can make no mistake in getting the **ANGUS**. They can beat the world on long or short grass. Also 2 Angora buck kids at \$7 each crated and delivered at my depot. **C. E. JONES, Carysbrook, Va.**

**ANGUS CATTLE FOR SALE**

Low Considering Quality.



1 Reg. Bull, very fine, 10 mos. old.
1 Reg. Bull, 6 mos. old. 1 Reg. Bull, 4 mos. old. Lot of 3 grades bull calves.
1 bull calf out of a Hereford cow by Reg. Angus bull 5 mos.

The above stock are as fine as can be found in Virginia, and will be sold reasonable.

W. M. WATKINS & SONS,
Saxe, Charlotte Co., Va.

MAGAZINES.

The Christmas issue of the Century is one of the finest ever sent out by the publishers. The subject matter of the number and the illustrations are alike good. The Century Magazine is an old favorite with those who know it and those who do not, do not know what they miss in the way of entertaining reading and high class literature in not taking the magazine. We can supply it in club with The Planter at a saving in the cost. See our clubbing list.

Lippincott's Magazine is always a welcome visitor where it is taken. Each number contains a complete novel by some well-known writer or by some new writer whose ability has commanded the attention of the Editor.

The Review of Reviews is unique as a magazine. It deals with the current events of the day all over the world and keeps its readers posted on all questions of public interest the world over. It also publishes what other magazines have to say on these subjects.

Cosmopolitan. This is one of the best cheap magazines, and it is always finely illustrated.

Don't forget that whatever magazine you may select for yourself for the coming year, St. Nicholas for young folks belongs somewhere in your family. No home with children is complete without it. It is the best magazine of its kind in the world. No better magazine can be published. Send to The Century Co., Union Square, New York, for a free specimen number and see if you are not convinced that it is a necessity in your family. \$3 a year. Less than one cent a day. Is the right kind of reading for your child worth it?

The Century Magazine—"The best in the world"—a strong statement, but a true one. The Century has led American magazines for more than thirty years; it publishes articles that make people think, stories that entertain and are literature, pictures by the world's greatest illustrators. Its illustrations in color are unsurpassed. The Century is not cheap in any sense; it costs \$4 a year, and it is worth the price. Try The Century this year, if you are not already taking it. The Century Co., Union Square, New York.

The Century will publish during the coming year a daring and unique piece of historical writing—namely, The Youth of Washington, told in the form of an autobiography by Dr. S. Weir Mitchell, LL. D., author of "Hugh Wynne." Dr. Mitchell, in whose famous "Hugh Wynne" General Washington appeared as a character of the novel, with general acceptance, and whose address in Philadelphia on February 22, 1903, showed strong imaginative sympathy with his subject, has made an exhaustive study of the heredity, circumstances, and events which fitted the son of a Virginia planter for one of the greatest careers in history. Dr. Mitchell imagines Washington sit-

—: REGISTERED:—**SHORTHORN CATTLE.**

Special prices on bred cows and cows with calf at foot and bred again. These calves are by and the cows bred to the great winning bull, Valley Champion. Some grand young heifers and bulls always on hand and for sale. Registered Duroc Jersey hogs.

IDLEBROOK FARM,

FRANK G. HOGAN, Box D, O'Bannon, Ky.

Geo. C. Hardy, Manager.

PURE BRED

Short Horn Calves

from fine Stock. Also

Yorkshire Pigs

of very Prolific Breed.

JAS. M. HOGE, Hamilton, Va.

SPRINGWOOD SHORTHORNS.

SPECIAL OFFERING.

4 yearling bulls, sired by Verbena's champion No. 129831. One two-year-old **POLAND CHINA BOAR**, a fine breeder, recorded bred in Ohio, sired by Guy Wilkes.

Good 8 weeks' old **POLAND CHINA Pigs**, \$5.00 each. Pedigrees furnished with all stock sold. Inspection invited.

WM. T. THRASHER, Springwood, Va.

ELLERSLIE FARM

Thoroughbred Horses

AND SHORTHORN CATTLE,

Pure Southdown Sheep and Berkshire Pigs.

FOR SALE. R. J. HANCOCK & SON, CHARLOTTESVILLE, VA.



COOK'S CREEK HERD

Scotch-Topped

Shorthorns

Herd Headed by Governor Tyler, 153548. Young Bulls for sale. Inspection and correspondence invited.

HEATWOLE & SUTER, Dale Enterprise, Va.

.. WOODLAND DORSETS ..

Won 6 first with 8 possible at Columbus, O., 7 out of 8 at Pontiac, Mich., and 6 out of 8 at Grand Rapids, Mich., with strong competition at all three places. Our Fall Lamb crop from Imp. Flower Ram is the finest quality we ever raised.

J. E. WING & BROS.,
Mechanicsburg, Ohio.

DORSETS AND HEREFORDS.

Some Exceptionally Rare Bargains to Quick Buyers.

My herd bull, bull calves and Dorset bucks. Registered stock.

H. ARMSTRONG, LANTZ MILLS, VA.

REGISTERED IMMUNE HEREFORDS.

Sale of 50 head at AUBURN, ALABAMA,
February 3, 1904.

Under the management and auspices of the Alabama State Experiment Station. This consignment is a pick of four of the best berds in Kentucky. Bulls and Females of ages to suit all. IMMUNE to Southern fever by INOCULATION.

For particulars and illustrated catalogues address GILTNER BROS., Eminence Ky., or Auburn, Ala.

We have a choice lot of cows, bulls and belfers for sale at our Kentucky Farms. Prices are reasonable. Write us before buying elsewhere.

V. P. I. Farm Bulletin

We are now offering some choice young
Bulls of the following breeds:

Shorthorn, Hereford, Aberdeen-Angus.

Write at once for pedigrees and prices.

D. O. NOURSE, Prof. of Agr.
Blacksburg, Va.

Swift Creek Stock and Dairy Farm



Has for sale a large number of nice young registered A. J. C. C.

JERSEY BULLS AND HEIFERS.

None better bred in the South. Combining closely the most noted and up-to-date blood in America. Bulls 10 to 12 months old, \$25; Heifers, same age, \$35. POLAND CHINA PIGS, \$5 each. Send check and get what you want.

T. P. BRASWELL, Prop., Battleboro, N. C.

ESSEX PIGS.



Some fine ones, not related, from recorded stock; also 30 South-down and Hampshire-down Lambs, address

L. G. JONES, Bethania, N. C.

HAWKLEY STOCK FARM

Offers some very fine

BERKSHIRE PIGS; also choice young BOARS. Nothing but Tops sold. A few fine S. C. B. LEHORN Cockerels left; from extra fine layers. J. T. OLIVER, Allens Level, Va.



O. I. C. PIGS

FROM REG. STOCK.

FOR SALE. PRICES RIGHT.

F. S. MICHIE, Charlottesville, Va.

FOR SALE

A half SHROPSHIRE RAM in fine condition, or will exchange for grade POLAND-CHINA Pigs.
R. A. MAPP,
Jacksondale, Va.

ting down at Mount Vernon in his old age and recording, solely for his own eye, the story of his "youthful life and the influences that affected it for good or ill." The author has so fully entered into the habit of mind of Washington that it is impossible for the ordinary reader to separate in the text the passages taken out of his actual writings from those which Dr. Mitchell imagines him to write. No one can read this record without obtaining a new and vivid sense of the personality of Washington and of the remarkable experiences which made him the man for the hour and for all time.

"The tinted illustrations . . . testify to the steady progress of an art which must in the end make the magazine of more permanent and vital interest."

THE INFLUENCE OF THE YOUTH'S COMPANION.

The gospel of good cheer brightens every page of The Youth's Companion. Although the paper is nearly seventy-seven years of age, it does not look back on the past as a better period than the present.

The Companion believes that the time most full of promise is the time we are living in, and every weekly issue reflects this spirit of looking forward and not back.

To more than half a million American families it carries every week its message of cheer. Its stories picture the true characteristics of the young men and women of America. Its articles bring nearly three million readers in touch with the best thought of the most famous of living men and women.

Annual Announcement Number fully describing the principal features of The Companion's new volume for 1904 will be sent to any address free.

The new subscriber for 1904 will receive all the issues of The Companion for the remaining weeks of 1903 free from the time of subscription, also The Companion Calendar for 1904, lithographed in twelve colors and gold.

THE YOUTH'S COMPANION,
144 Berkeley St. Boston, Mass.

REPORTS.

U. S. Department of Agriculture, Washington, D. C. Bureau of Animal Industry. Nineteenth Annual Report, 1902. This is a most valuable report, and ought to be in the hands of every stock keeper. Apply to your Senator or Congressman for a copy.

Farmers' Bulletin, No. 181. Pruning. Bureau of Plant Industry. Bulletin 44. The Bitter Rot of Apples.

Arizona Experiment Station, Tucson, Arizona. Bulletin 46. The Underground Waters of Arizona.

Bee Products in Arizona. Kansas State Board of Agriculture, Topeka, aKn. Report for the Quarter, September 30, 1902. Modern Dairying. This is one of the most useful reports yet issued

BERKSHIRES

ANNEFIELD HERD

Represents the

Finest Blood Lines

In England or America.

Stock for sale at all times.

Correspondence Solicited.
Inspection Invited.

EDW. G. BUTLER, Annefield Farms,
Briggs, Clarke Co., Va.

ANGORA GOATS.



A few pairs for sale—High grades,
\$15; Registered, \$40 per pair.

JEREMY IMPROVEMENT CO.,
SAXE, VA.

150 Jacks, Jennets and Mules.

Best assortment I ever owned. Can suit you exactly. Write for description and prices. Also will sell 2 Percheron Stallions at close figures.

BAKER'S JACK FARM,
Lawrence, Ind.

Knight & Jetton,

Breeders of and Dealers in
Jacks, Jennets, Stallions.
Durham and Hereford
YEARLINGS.
Send stamp for Catalogue.
Murfreesboro, Tenn.



Jacks, Jennets and Stallions

FOR SALE. FINE JACKS A SPECIALTY. When writing state exactly what you want or come and see our stock.

W. E. KNIGHT & CO.,
Route 5. Nashville, Tenn.



by this Board, and ought to be in the hands of every dairyman. Like every report sent out under the hand of Mr. Coburn, the able secretary of the Board, it is worthy of the highest praise. The Kansas Board, under the direction of Mr. Coburn, is one which never requires to justify its existence. Its works do this for it. Would that we could say the same of all other Boards.

New Mexico Experiment Station, Mesilla Park, New Mex. Bulletin 47. Shade Trees and Other Ornamentals.

Ohio Experiment Station, Wooster, O. Bulletin 141. The Maintenance of Fertility.

Tennessee Experiment Station, Knoxville, Tenn. Bulletin, Vol. XVI., No. 3. Corn, Wheat and Soy Bean Meal for Pork Production.

Bulletin, Vol. XVII., No. 4. The Influence of Climate and Soil on the Composition and Milling Qualities of Winter Wheat.

Virginia Weather Service, Richmond, Va. Report for October, 1903.

Washington State College Bulletin, Pullman, Wash. The Dairy Cow—Nature Study.

Imperial Department of Agriculture for the West Indies, Barbadoes, W. I. Agricultural News.

THE KING'S PLAN.

A story is told of an attempt made by a Swedish missionary to obtain a foothold in Abyssinia. No sooner had he begun to preach than he was brought before King Menelek, who asked him why he had left his home in Scandinavia in order to come to Abyssinia. The missionary promptly replied that he had come to convert the Abyssinian Jews, who are regarded as fair game for the outside propagandist. "Are there no Jews in your country?" asked Menelek.

The missionary admitted that there were a few.

"And in all the countries that you have passed through did you find no Jews or heathen?" the king continued.

Jews and heathen, the missionary admitted, were plentiful.

"Then," said Menelek, "carry this man beyond the frontier, and let him not return until he has converted all the Jews and heathen which lie between his country and mine."—*Argonaut*.

Noah was the first man to advertise. He advertised the flood and it came all right. The fellows who laughed at the advertising got drowned and it served them right. Even since Noah's time the advertiser has been prospering, while the other fellow is being swallowed up in the flood of disaster.—*Ex.*

A neat Binder for your back numbers can be had for 25 cents. Address our Business Office.

HOG BOOK FREE

A copy of my book, "HOG LOGY," revised and enlarged, will be sent Free to any hog raiser who mentions this paper when asking for it. A few of the many important subjects that are thoroughly covered in this valuable book are: Descriptions and illustrations of the leading breeds of swine; swine-record associations; best location for hog-raising; selecting a breed; what constitutes a good hog for the farmer; value of a good boar; value of a pedigree; breeding; care of the sow; rearing fall pigs; fecundity of sows; practical foods; the runt pig; when to market; inbreeding; anatomy of the hog (fully illustrated); diseases and treatment, etc., etc.



TRADE-MARK.

I Insure Hogs and Pay for All That Die

When my Remedy is used as a preventive. Write for plan. This Remedy is a MEDICINE especially for hogs, and must not be confounded with cheap "stock foods." 27 years unequalled success and the biggest money maker for hog raisers known.

PRICES:—25-lb. can, \$12.50; 12½-lb. can, \$6.50, prepaid; pkgs., \$2.50, \$1.25 and 50c. each. None genuine without my signature on package or can label.

JOS. HAAS, V. S., Indianapolis, Ind.

LARGE YORKSHIRE HOGS

THE COMING BACON BREED—

THE MOST PROLIFIC BREED—

48 pigs from four litters, ready for December delivery—our Fall prices always the lowest.

INDIAN GAMES, the fashionable table fowl.

WHITE LEGHORNS, the greatest layers.

WHITE WYANDOTTES, the best all round fowl. Also

JERSEY BULLS and HEIFERS from cows with recorded butter tests of 18 to 24 lbs. in 7 days.

BOWMONT FARMS, Salem, Va.

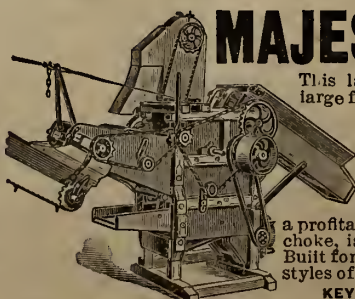


BERKSHIRES.

I have just added to my herd, 2 new Imported and extremely fancy BOARS: 1 bred by J. A. Fricker, Burton Mere, Wiltshire, Eng., and the other from the herd of R. W. Hudson, Danesfield, Eng. Imported Sir John Bull and Uncle Sam are still in my herd. I made a large shipment of pigs Nov. 17th, having orders from New York to Mexico. I never was as strong on boar pigs as NOW. Both pigs and price will suit you. Be sure to start with a new boar for Spring litters.

THOS. S. WHITE, Fassifern Stock Farm, Lexington, Va.

Remember me when pricing SHORTHORNS (Durhams). I also offer 4 cars of bright timothy hay.



MAJESTIC SELF FEED SHELLER.

This labor-saving machine meets the imperative demands of large farmers, feed stores, mills and elevator men. It is furnished either mounted or unmounted with wagon box elevator or double sacking elevator as illustrated. Its capacity is

75 to 100 Bushels An Hour.

The mounted sheller is peculiarly adapted to carrying on a profitable neighborhood business in custom shelling. It will not choke, is perfect working in sacking and feeding attachments. Built for long, efficient service and fully guaranteed. We make 20 styles of shellers, both hand and power. Ask for free catalogue.

KEYSTONE FARM MACHINE CO., 1554 N. Beaver St., York, Pa.

THE IMPERIAL .. FRUIT and POULTRY FARM ..

OFFERS FOR A LIMITED TIME ONLY AT \$1.00 EACH:————

400 Barred Plymouth Rock Cockerels and Pullets.

100 S. C. Brown Leghorn “ “ “ .

50 White Leghorn Pullets.

30 “ Wyandotte Cockerels.

30 “ Plymouth Rock Cockerels.

76 Silver-Laced Wyandotte Cockerels and Pullets.

10 Black Minorca Cockerels.

This stock is well-bred and will give satisfaction. Also offer 25 BARRELS of WHITE FRENCH and JERUSALEM ARTICHOKES at \$2.00. Try them now so you will be ready when it is time to plant.

P. H. HEYDENREICH, Prop., : : : Staunton, Va.

BILTMORE FARMS, = Biltmore, N. C.

Headquarters for GOLDEN LAD JERSEYS,

Also Get of TREVARTH and GEN. MARIGOLD. ❀ ❀ ❀

GOLDEN LAD'S SUCCESSOR. First and sweepstakes over all at the Pan-American Exposition, the champion JERSEY BULL OF AMERICA, and out of Golden Ora, our great prize-winning cow, both born and developed on these Farms, is among our service bulls.

Biltmore Jerseys are a combination of large and persistent milking qualities with an individuality that wins in the show ring.

SPECIALTY. Write for descriptive circular of the best lot of young bull calves ever offered, both for breeding and individuality. They are by noted sires and out of large and tested selected dams. Many of these calves are fit to show and win in any company.



BILTMORE POULTRY YARDS.



SPECIALTY. Write for descriptive circular of eggs from our prize-winning pens. Over 50 yards to select from, made up of the winners at the leading shows for the last two seasons. If you want winners you must breed from winners.

Headquarters for the best IMPORTED ENGLISH BERKSHIRES.

APPLY TO *BILTMORE FARMS, BILTMORE, N. C.*

EMILY'S CHARGE.

A Serial Tale by Mary Washington.

CHAPTER VI.

About the time Walter was fifteen, to Emily's great relief, a way was opened for him to go on with the studies which she no longer felt competent to teach him. The clergyman of the parish, who was an accomplished scholar, made up a class of boys to teach in those branches, three times a week. He had two little daughters whom he was anxious to have instructed in music, so Emily proposed an exchange of lessons, and as the clergyman willingly acceded to this arrangement, Emily had the happiness of securing for her brother those advantages which she had feared would be out of his reach. The clergyman proved a kind and helpful friend in many ways. Amongst others, he lent them many valuable new books and periodicals, introducing them thus to many fine writers who had entered the field of letters since they had ceased to have means to buy new books, or subscribe to periodicals. As Emily had been almost entirely debarred from periodicals for several years, it was a great enjoyment to her to have access to them again. It is a kind of literature that cannot be supplied by any books, however fine, and to persons living in an isolated situation it is especially important, if they wish to remain at all in touch with the outside world with its mighty onward rushing current of spiritual, intellectual and material activities. Walter, from not having had many advantages, learned to prize such as came within his reach in a way that would have surprised more favored boys who are apt to think they are conferring an obligation on their parents or teachers when they deign to avail themselves of the educational advantages lavished on them. He was studious and quick, so he kept apace with the other boys who were preparing for college, though there seemed no prospect of his ever going there, himself. But his mind was so receptive of knowledge that Emily felt no uneasiness now about his being an ignoramus, even if he should never enter the doors of a college. He had changed and developed very much and very rapidly since they had lived at the cottage. He was naturally of an easy, careless, pleasure loving temperament, but the circumstances under which he was growing up had done much to counteract this natural bent and to bring out nobler traits. These simple and innocent modes of life, the necessity for him to exert and deny himself, his love for his sisters, and theirs for him, all these things had conspired to early develop the careless boy into a manly and thoughtful youth. Already he was beginning to assume a tone of protective tenderness to his sisters, and Emily felt that the day was not very far distant when he and herself would reverse positions, and she would begin to lean on and look up to him.

Bargains in CATTLE.

Having sold my farm, I offer a splendid lot of cattle at very reasonable prices. I must sell them as I have no place to winter them.

22 3-yr. old **Angus Heifers**, $\frac{3}{4}$ pure).

2 3-yr. old Grade **Shorthorn Heifers**.

All of these heifers to have their second calves next year by a **Reg. Angus Bull**.
18 calves from above **Angus Heifers** by a **Reg. Angus Bull**.

1 half-bred yearling **Angus Heifer**.

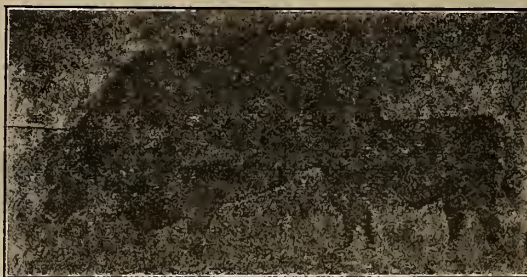
1 6 mos. old half-bred **Angus Heifer** calf

1 Registered 2 yr. old **Angus Bull**.

I would like you to come and see these cattle. Come to Danville, Va., and take the D. & W. cars to Oak Hill, Va.

W. D. BETHELL, Wenoda, Va.

. ABERDEEN-ANGUS CATTLE ..



The best breed in the world for grading up purposes.

Pure-bred bulls from 3 mos. to 4 yrs. old. Prices \$50 to \$150 according to age and quality.

None but good individuals sent out.

Call and see them, or write for what you need.

ROSEDALE STOCK FARM, Jeffersonton, Culpeper Co., Va.

SUNNY HOME HERD OF

ABERDEEN-ANGUS CATTLE.

BARON ROSEBOY 57666 by the great **GAY BLACKBIRD**, heads the herd.

Our motto, "QUALITY first, last, and all the time." Our aim, to produce the best cattle possible. Prices as low as is consistent with first quality. Write for what you want to

A. L. FRENCH, R. F. D., Byrdville, Va.

Depot and shipping point Fitzgerald, Rockingham Co., N. C., D. & W. Railway, 24 miles southwest of Danville, Va.

WE OFFER

a few well-bred registered Jersey Bull and heifer Calves at \$30 each.

They are four months old and from best strains of this breed; also a few young **Berkshire** boars large enough for service at \$15 each, and pigs eight weeks old at \$6 each—by pair or trio, not akin.

M. B. ROWE & CO.,

Fredericksburg, Va.

But neither "the course of true love" nor any thing else in this mortal life is destined to run smoothly, always, and this fact, the orphans experienced in the fourth year of their sojourn at the cottage. That summer being an unfortunate one for fruit and vegetables, they scarcely realized any thing at all from these sources. Emily looked forward, however to relieving their little fortunes by means of her school, in the autumn. Judge then, what was her dismay when the School Trustees informed her (which they did very reluctantly) that it was against the regulations to locate the school at the same place, that year as it had already been located in one place as long as it was allowable to do so consecutively. They now had to remove it to another locality, quite out of her range, so during the ensuing session, she had to eke out a scanty living by teaching a small private school. I may anticipate the course of my narrative, however, by saying that her school was given back to her next session to the great rejoicing of the children and neighbors around her. The neighbors had become so much attached to the orphans that during the term when Emily was deprived of the public school, they took care, in many kind and thoughtful ways, to do all they could to fill up the breach, sending them many substantial proofs of kindness, in the shape of suppers. During this time of straitness, Emily could not help having at times a heart sinking fear lest after all, their little household might have to disband, and she might have to give up the undertaking that was the cherished object of her life, but she was enabled to weather the storm by the kindness of her friends and neighbors, the pittance she got from her few pupils, and the proceeds of a silver urn and ladle she had kept for extremities. These were old fashioned pieces of silver that were heirlooms in her mother's family, and their kind friend, the clergyman effected the sale of them to a friend of his who was an enthusiast about old fashioned silver and articles in general. When she heard the history of the orphans, she being wealthy and generous, as well as kind hearted, added \$25.00 more to the already liberal sum she had agreed to give for the silver so the fund from this source was of very great assistance in maintaining the orphans. They had been living at the cottage about five years when, one day, a visitor was announced whose name was dimly familiar to Emily as a memory of her childhood. It was that of a man who had formerly been a friend and neighbor of the Henningshams, but who had gone West, several years before the war.

He told her he had recently returned from the West and had just been to his old neighborhood where, said he, "I felt disposed to quote Moore's lines,

"I feel like one who treads alone
Some banquet hall deserted."

Established 1828.

75 Years.

BUIST'S GARDEN SEEDS.

OUR SPECIALTY is the growing of Garden Seeds from Selected Seed Stocks. The great importance of following this system for the production of Seeds to insure fine vegetables is familiar to all gardeners; if vegetables from which seeds are grown are inferior or impure, so must their product be.

IF YOU HAVE a Garden, send for **Buist's Garden Guide** for the South; edition for 1904 now ready.

IF YOU ARE a Marked Gardener, send for **Our Wholesale Price List for Truckers**, now ready.

IF YOU ARE a Country Merchant, send for **Our Wholesale Trade Price List**, now ready.

**ROBERT BUIST COMPANY,
SEED GROWERS,
PHILADELPHIA, PA.**

Reg. HOLSTEIN-FRIESIAN

CATTLE of the Netherland, De Kol, Clothilde, Pietertje and Artis families. Heavy milkers and rich in butter fat. Stock of all ages for sale.

Reg. BERKSHIRES From noted strains, Imported Headlight, Lord Highclere and Sunrise.

DORSET SHEEP

B. PLYMOUTH ROCK CHICKENS,

N. & W. and Southern R. R.

T. O. SANDY, Burkeville, Va.

Hill Top Stock Farm.

BERKSHIRE HOGS and SOUTHDOWN SHEEP

—A Specialty.—

S. Brown Allen, who succeeds H. A. S. Hamilton & Co. in the ownership and management of this celebrated Stock Farm, with increased facilities, will make a specialty of breeding Berkshire Hogs and Southdown Sheep, without regard to cost, from the purest and most royal strains of imported blood.

My BERKSHIRE PIGS

For this Fall delivery will weigh 100 pounds at 12 weeks of age, and for INDIVIDUAL MERIT cannot be excelled in the United States. They will make show hogs against any and all competitors and are being engaged every day.

S. BROWN ALLEN, Staunton, Virginia, (Successor to H. A. S. HAMILTON & Co.)



ABERDEEN ANGUS BULLS

FOR SALE.

"Every Bull a Show Bull."

The choicest lot of young bulls in Southwest Virginia, all out of prize winning families at low prices. Do you want a bargain? If so, come and see us, or Address **W. P. ALLEN**, Prop of **Glen Allen Stock Farm**, WALNUT HILL, VA.

So changed was the dear old place. Not the least sad of the changes was to find that your father was dead, and his children no longer owning his old home. I not only wished to see him on account of our friendship, but I had some business to transact with him. I have sought you out as his representative."

"What is the business you speak of?" asked Emily.

"It involves a little history of which I will tell you. Many years ago I fell into such business difficulties that nothing remained but for me to wipe out and start fresh. I had a notion to try my fortunes in the West, but the journey and contingent expenses, together with some little debts I had to settle before starting required about \$1,000. Your father who was very prosperous at the time, volunteered to lend me the sum, and declined to take my bond for it, saying, 'I know you will return it, if you are ever able, and if not, you may accept it as a gift.' I need not say this generous confidence bound me more strenuously than any legal form could have done to return the loan whenever it was in my power. I did not arrive at any sudden and fairylike prosperity in the West. Few people do. Then our communication with the East was cut off during the war, so I could not have returned the money then, even if I had had it. Since the war, I have had my ups and downs, and have only attained anything like reliable prosperity in the last year or two. But the delay seems to have been providential, for had I paid this score sooner, it might have been swallowed up in the general wreck of your father's fortunes. As it is, I hope it may prove of some service to his children."

With tears of emotion, Emily thanked her kind friend. She had known nothing of the transaction and there existed no proof of it except on his memento.

"That money was loaned me," resumed he, "long enough ago to have doubled itself, if I had borrowed it from a regular money lender. Therefore I consider it only just to return it to you double," and so saying, he handed her his check for \$2,000.

Emily protested against this. The transaction, she reminded him, had been a purely friendly transaction, and should not be conducted as with a money lender.

"The money your father lent me, my dear young lady, has benefitted me at the time far more than many times the same sum would do now. It gave me a start, and now I am both willing and able to return it with interest, and it is only just I should do so." So saying, he took his leave.

She then hastened to tell Walter and Alice of their good fortune.

"What a windfall!" exclaimed Walter, in boyish glee.

"Nay," said Emily, reverentially raising her eyes towards heaven. "Not a windfall, but a God send."

Our readers may imagine the state

Black Leg Vaccine

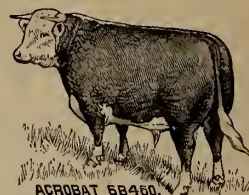
PASTEUR VACCINE CO. CHICAGO SAN FRANCISCO.

ROSEMONT HEREFORDS.

HEADED BY THE FAMOUS ACROBAT 68460,

SPECIAL NOTICE! 10 nice, well-bred heifers, safe in calf to Acrobat, will be sold at very reasonable figures.

C. E. CLAPP. Berryville, Clarke Co., Va.



VIRGINIA HEREFORDS,

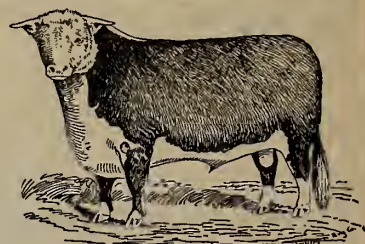
Herd headed by the Champion

PRINCE RUPERT, 79539.

Correspondence Solicited. Inspection Invited.

EDWARD G. BUTLER,

Annefield Farms. BRIGGS, Clarke Co., Va.



PRINCE RUPERT, 79,539

Bacon Hall Farm.

Hereford REGISTERED Cattle

"TOP" BREEDING, CALVES NOT AKIN.

MOTTO—Satisfaction or no sale.

E. M. GILLET & SON, - Glencoe, Maryland.

REGISTERED HEREFORD CATTLE.

Service Bulls; Imported Salisbury 76059 (19083), a grandson of the famous Grove 3d 2490, and a descendant of the world renowned Lord Wilton 4057 from the 4th generation.

Snowball, the dam of Salisbury, is now in the herd of His Majesty King Edward VII.

Lars, Jr., is by Lars of Western fame and his dam is Judy out of a Sir Richard 2nd cow. This makes a great combination of the Grove 3d, Lord Wilton, Anxiety, Peerless Wilton and Sir Richard 2nd strains. No better breeding in the world today.

FOR SALE—Yearling bulls by above sires. WANTED—Reg Hereford heifers, 18 to 24 months old, not bred; will exchange bulls for heifers of equal quality.

Extremely low prices to close out this bunch; only a few left.

Write your needs or call and make your own selection.

MURRAY BOOCOCK, Owner, Keswick, Alb. Co., Va.

KESWICK is on the C. & O. Ry., near Charlottesville, Virginia.



When corresponding with our advertisers always mention the
Southern Planter.

of pleasant excitement into which this treasure trove threw the orphans. Emily's first impulse was to give Walter a collegiate course with the money, sustaining Alice and herself still by her school. Walter was now in his 18th year, a tall, fine looking, manly youth, the joy and pride of his sister's heart. He had already begun to judge and decide for himself, and sometimes more wisely than his first impulses suggested.

"No, sister," said he. "This cannot and ought not to be. It would be like eating up seed corn. I never mean to go to college, unless I can first earn the money myself. I will not use for this purpose money that ought to be so invested as to contribute to your and Alice's support."

They called in their kind friend, the clergyman, for consultation, and one or two of the other neighbors, in whose judgment and good wishes, they felt an especial confidence. After a long consultation as to how the money could be invested so as to yield the best and most lasting results, the general opinion was that it would be wisest to invest it in a small grazing and fruit farm, reserving enough of the fund to get a small flock of sheep, a few head of stock, and enough young fruit trees to set out a good sized orchard.

What gave additional weight to this advice was the fact that a small farm suitable to their purposes, was actually on the market, very near their present location. They already had the nucleus of a good orchard, and had acquired some knowledge and experience in the line of fruit culture, and so it seemed wisest for them to go on from this starting point, especially as this was a section peculiarly well adapted to the cultivation of orchard fruits. In the course of a few months, they carried into effect the plan proposed by their friends, and though I cannot startle my reader by any recital of how the sheep, cattle and fruit trees proved invulnerable to accident and disease, and marvelously remunerative, still under Walter's careful tendance, they thrived very well, and year by year, increased and improved as he gained greater experience and skill in the care of them. These resources were sufficient to yield the orphans a comfortable support, together with Emily's school.

Walter, meanwhile, did not neglect to keep up his studies under the clergyman, and to read, as much as he had an opportunity to do, and owing to this, as well as to the refining influence of his sisters, he escaped being awkward and rustic. He looked forward now to attending an Agricultural College near him, a session or two, as he had gotten things in sufficiently good shape to justify him in leaving them on Mr. Wheeler's hands during his absence.

(To be Continued.)

CHAPTER V.

("Dandy little bouquets" should read "Dainty little bouquets.")

ARMOUR'S BLOOD MEAL Cures Scours In Calves.

First proved by the Kansas Agricultural Experiment Station, and since corroborated by thousands of leading stockmen who have used it without a single failure. Equally effective for the diarrhea of all animals.

PREVENTS weak bones, paralysis of the hind legs and "thumps" in pigs; "big head" of foals; "rickets" of all young animals; abortion due to incomplete nutrition, and a host of other troubles.

A Potent Food for Work Horses, Dairy Cows, Poultry.

Write us for booklet giving valuable information about Blood Meal and our other feeding products. Consult us free of charge regarding stock diseases.

THE ARMOUR FERTILIZER WORKS,

Chicago. Omaha. Baltimore. Atlanta. Jacksonville.

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BERKSHIRE PIGS

of choice breeding, and to make them more desirable, they are fine individuals, properly fed; therefore they develop well. Write-

Forest Home Farm,

Purcellville,

Virginia.

CISMONT DORSETS

CISMONT STOCK FARM offers well developed young Dorsets of the best blood of England and America.

Prices Reasonable.

G. S. LINDENKOHL, Keswick, Albemarle Co., Va.


... EDGEWOOD STOCK FARM ...

DORSET SHEEP.

Breeding DORSETS our business for 12 years. We can now offer Dorsets of high quality. Our ewes lamb in the fall. We have fall lambs now ready. Last season these lambs weighed 135 pounds in June. Allow us to insist that you buy only GOOD SHEEP when you buy Dorsets. Dorset sheep have a special place in Virginia. No other breed can take their place in the early lamb business. Write us for facts to prove this. We ship our sheep on approval.

J. D. ARBUCKLE, Greenbrier County.

H. B. ARBUCKLE, Maxwelton, W. Va.



FARQUHAR Portable Saw Mills

with Engines and Boilers Complete.

Made in seven sizes, friction feed, cable lightning rig, patent chain set works and improved dogs. **AJAX CENTER CRANK ENGINES** are constructed with especial reference to the peculiar work required of them. This combination of engine and mill makes the best sawmill outfit on earth.

A. B. Farquhar Co., Ltd
York, Pa.

Illustrated catalog of farm machinery and implements, free.

AJAX Center Crank ENGINE

IMPORTED BERKSHIRES AT BILTMORE FARMS.

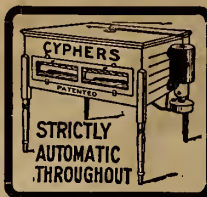
In addition to the large and choice importation of brood sows which the Biltmore Farms selected during the last summer and bought out in June, they have just received by "S. S. Georgic" four young sows—the prize winning pen of pigs at the English Royal in 1903. They were bred by His Royal Highness, Prince Christian, and were bought almost as much for the blood lines represented through sire and dam as for their winning at the Royal, and they are certainly a good example of like producing like, and may safely be counted on to produce themselves. Being by Handley Cross, a son of History, and out of Highclere Gem VI., they are full sisters to the first prize aged sow and reserved for championship at the Royal, and also by the same boar as Lord Lyon, a young boar that was selected by Biltmore Farms as being the best young boar that they could find in England. This last lot has added to the offering of imported sows which will be sold in February on the Farms, making 70 head in all. These sows themselves are of the very richest breeding and the best individuality that could be found in all England. All are either prize winners themselves or are out of prize winners, and are being bred to the very best of boars after careful study of the blood lines, so as to select the best possible nicks. Among these boars are the following:

No. 1. Danesfield Warrior (a son of that sire of many prize winners, Manor Favorite), champion and winner of first in class at the English Royal in 1902, and many other firsts at leading shows, including the Royal the year before.

No. 2. Lord Lyon, a son of Handy Man, and consequently a half brother to the first prize pen of sows at the Royal, and was described by Mr. Chapman (a prominent breeder) as one of the best young boars that had ever left England. He combines style and finish with unusually good hams, extreme length and typical head to a remarkable degree.

Then there are two young boars (full brothers), out of the great prize winning sow Danesfield Huntress, called Danesfield Hunter and Danesfield Huntsman 1st. One of them was shown and proved quite a winner, whilst the other was kept at home for service on the noted herd of Mr. Hudson's. The dam has made a great name at the leading shows as a producer, and also as a producer of prize winners. In fact, this Huntress blood is one of the strongest and best strains that can be found in England. In addition to the above, all the great boars now in Biltmore herd, such as Loyal Lee II., champion boar of America, the Duke, etc., are being used, and their litters out of these prize winning English sows should make great continuations.

The catalogue of this offering will be gotten out in the usual full and detailed manner of the past offerings.



The Cypers Guarantee
backed by every dollar we have in the world is made to you, personally. It says that **YOU** will hatch a larger percentage of healthy, vigorous chicks, with less oil, less attention, less trouble and more satisfaction, in a genuine, patented
CYPHERS INCUBATOR
than in any other make or you get your money back. The genuine Cypers is the only patent diaphragm, non-moisture, self-ventilating, self-regulating incubator. Adopted and endorsed by 36 Government Experiment Stations and used by more leading poultrymen than all other makes combined. Catalogue free if you name this paper. Address nearest office.
CYPHERS INCUBATOR CO. Buffalo, N.Y., Chicago, Boston, New York.

THE OAKS

Has for sale, the grand Shorthorn bull, "ROCK HILL ABBOTTSBURN" 155113, a grandson of Mary Abbottsburn 7th; also a nice lot of CALVES, BULLS and HEIFERS; 2 Reg. MORGAN COLTS at a bargain.
B. B. BUCHANAN, Bedford City, Va.

... REGISTERED ...
POLAND-CHINA
Pigs from 4 to 6 months old. Boars ready for service, and young sows with pigs. Prices Reasonable. Apply to . . .
J. C. GRAVES, Barboursville, Va.

NOW IS THE TIME to buy HOLSTEINS from the Ury Farm Herd.

Ury Alwina Count Paul De Kol; De Kol 2nd Butter Boy 3rd No. 2, and Lord Harford De Kol head our herd. You know their official backing. There is nothing better. 15 bull calves at bargain prices. Their dams are of the De Kol, Aaggie, Netherland, Pietertje and Clothide strains and are of the producing kind. The best bulls are sold young; also a few cows and helpers. Choice ENGLISH BERKSHIRE pigs of the best strains. Before buying, correspond with or visit

THOS. PASSITT & SONS, Sylmar, Md.

We positively guarantee to breed and ship the VERY BEST strains of thoroughbred registered **LARGE ENGLISH BERKSHIRE** Hogs for LESS MONEY than any other firm in the U. S., the superiority of our stock considered. Send us your order and we will satisfy you both in price and stock.
WALTER B. FLEMING,

Proprietor of the Bridge Creek Stock Farm, Warrenton, N. C.



POLAND-CHINAS.

I have a limited number of pigs by my fine boars Gray's Big Chief, 57077; and Victor G, 57075, and can furnish pairs not akin or related to those previously purchased. Young boars and sows of all ages. Send to headquarters and get the best from the oldest and largest herd of Poland-Chinas in this State at one-half Western prices. Address
J. B. GRAY, Fredericksburg, Va.



GRAY'S BIG CHIEF, 57077.

2,000,000 ELBERTA PEACH TREES

We offer 2,000,000 Elberta June Buds, besides a large stock of Belle of Georgia, Mamie Ross, Carmen, Greensboro, etc. Big assortment of 2-year Pear and Cherry, and small fruit plants. Write for Catalogue.

CHATTANOOGA NURSERIES, Chattanooga, Tenn.

REFERENCES: Hamilton Trust & Savings Bank; N. Dietzen & Bro., Chattanooga; Dunn's Mercantile Agency; Southern Planter.

and breeders should write for it if only to get the list of the English prize winners.

Any breeder who attended our last sale prophesied that it would be impossible to find a better lot or even as good again as the offering of 1902, which went at such a record breaking price, but breeders who have examined the present lot acknowledge that they are much better and decidedly more uniform. They ought to be, for nearly 20 per cent. more was paid for them as a whole, and a long time given for searching through England, and more agents kept in the fields looking out for desirable animals. In fact, nothing was left undone, and whatever the results of the sale, whether the public buy them in at their value or secure them at a bargain, the Farms at least have distributed a lot of animals of tested blood lines and whose influence is bound to be felt in the future.

AGRICULTURE FOR BEGINNERS.

By C. W. Burkett, Professor of Agriculture; F. L. Stevens, Professor of Biology; and D. H. Hill, Professor of English in the North Carolina College of Agriculture and Mechanic Arts. 12mo. Cloth. 267 pages. Illustrated. List price, 75 cents. Ginn & Co., Publishers, New York.

The authors have prepared this little book in the belief that there is no line of separation between the science of agriculture and the practical art of agriculture, and that the subject is eminently teachable. Theory and practice are presented at one and the same time, so that the pupil is taught the fundamental principles of farming just as he is taught the fundamental truths of arithmetic, geography, or grammar.

The work is planned for use in grammar school classes. It thus presents the subject to the pupil when his aptitudes are the most rapidly developing and when he is forming life habits. It will give to him, therefore, at the vital period of his life a training which will go far toward making his life work profitable and delightful. The text is clear, interesting and teachable. While primarily intended for class work in the public schools, it will no doubt appeal to all who desire a knowledge of the simple scientific truths which lie at the foundation of most farm operations.

The 218 illustrations are unusually excellent and are particularly effective in illuminating the text. The book is supplied throughout with practical exercises, simple and interesting experiments, and helpful suggestions. The appendix, devoted to spraying mixtures and fertilizer formulas; the glossary, in which are explained unusual and technical words; and the complete index are important.

In mechanical execution—in the attractive and durable binding, in the clear, well-printed page, and in the illustrations—the book is easily superior to any other elementary work on agriculture.



Warmth

If you value comfort when driving use.....

LEHMAN CARRIAGE and SLEIGH HEATERS.

Universally recognized as the STANDARD make. Avoid WINTER discomforts by heating your Carriage, Wagon or Sleigh with one of the LEHMAN HEATERS. It burns LEHMAN coal at a cost of 1-4 cent per hour, or 2 cents per day, and there is no smoke, smell nor danger of fire from same.

HORSEMEN everywhere use and recommend them, which in itself is a GUARANTEE of their usefulness, and their high standard.


200,000 OF OUR HEATERS are in actual use. Have you one? Write for booklet and prices. Your carriage, harness or hardware dealer has our goods.

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A DIVIDEND-PAYING INVESTMENT. LARGE PROFITS GUARANTEED. SECURITY OF THE BANK. NO POSSIBILITY OF LOSS.

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Best.



THE GREAT WESTERN Manure Spreader

Is the only Spreader **ENDLESS APRON** and made that has an **ENDLESS APRON** and the many advantages which it possesses. It's always in place and ready to receive the load without any turning back either by hand or complicated, easily broken machinery. The front and rear axles are of same length which, with the

Broad Tires Prevents Rutting of fields, meadows, etc. and makes

LIGHT DRAFT. SPREADS ALL KINDS OF MANURE, wet, dry, frozen, light, chaffy, packed or caked. Can be changed instantly to spread thick or thin while the machine is in motion—8 to 25 loads per acre. **END GATE AND BEATER AND HOOD PROTECTOR IN USE.** Made of best material in every way. **POSITIVE GUARANTEE** as to quality, capacity and durability. All parts breaking within one year will be replaced without charge. Write for free illustrated and Descriptive Catalogue—the best and most complete spreader catalog ever published.

SMITH MANURE SPREADER CO. 16 & 18 S. CLINTON STREET, CHICAGO, ILL.

DOMESTIC RECIPES.

PUMPKIN PIE.

One cup (pint) stewed pumpkin. one-half cup sugar and sweet cream to make consistency of thin batter Beat two eggs and sugar together and add to pumpkin. Season with powdered cinnamon. Line pie plate with flaky crust and fill with pumpkin batter and bake in a quick oven.

ENGLISH PLUM PUDDING SUFFICIENT FOR TWELVE PEOPLE.

Chop fine one pound beef suet, mix it with two pounds of sifted flour, two pounds of bread crumbs, a little salt three teaspoonful of baking powder two pounds stoned raisins, two pounds cleaned currants chopped, add spices (nutmeg, ground cloves, or any mixed spices to suit the taste) one pint brandy or good wine, one dozen eggs well beaten. Mix all ingredients well. Flour your pudding cloth or bag, or mould and boil 10 hours. If served at once pour one-half pint brandy over and just as served touch with a lighted taper and send to table blazing. This will keep for months and can be reheated.

GREEN TOMATO SWEET PICKLE.

Slice green tomatoes and onions, alternate layers, in a stone jar, and sprinkle lightly with salt, let stand one night, drain off all the water next morning, and put one pound brown sugar, and one ounce of ground mixed spices and one quart of good vinegar to one gallon of the tomatoes and onions and boil until onions are done Put in stone or glass jars and cover with vinegar.

DRESSING FOR TURKEY (ROAST.)

To one pint of sifted corn meal, add one-half pound lard and a little salt make into a loaf or cake, with cold water and bake done. Then break into fine pieces, crust and all and season with black pepper, one egg, a pinch of sage, an onion chopped fine, and liquor in which turkey has been cooked. to make it stick together and stuff. Sage may be omitted, oysters may also be added.

Grape jelly is nice with fowl.

MRS. N. K. GUTHRIE.

OLD VIRGINIA HAM.

Select ten fresh pork hams of ten pounds each, rub over the flesh side of these a mixture composed of two pounds of brown sugar, $\frac{1}{2}$ pound of salt petre, $\frac{1}{2}$ pound of black pepper and $\frac{1}{2}$ pound of red pepper. Salt enough to cover the hams, about three quarts to the 100 pounds. Pack in a tub or box with the skin downward. Let them remain six weeks, then hang by a string and smoke with green wood,

Something good for Christmas

During the holiday season, when good cheer everywhere prevails, there is nothing nicer to have in the house than a little good whiskey, and besides, your physician will tell you it is excellent in many cases of sickness. But you must have good whiskey, pure whiskey. You don't want to drink poor whiskey yourself, much less offer it to your friends, while as a medicine, poor whiskey, adulterated whiskey, may do you decided harm.

HAYNER WHISKEY goes to you direct from our own distillery, with all its original richness and flavor, and carries a UNITED STATES REGISTERED DISTILLER'S GUARANTEE OF PURITY and AGE. When you buy HAYNER WHISKEY you save the enormous profits of the dealers and have our guarantee that your money will be promptly refunded if you are not perfectly satisfied with the whiskey after trying it. That's fair, isn't it?

HAYNER WHISKEY

PURE SEVEN-YEAR-OLD RYE

4 FULL \$3.20 EXPRESS
QUARTS 3 PREPAID

We will send you FOUR FULL QUART BOTTLES of HAYNER'S SEVEN-YEAR-OLD RYE for \$3.20, express charges paid by us. Try it and if you don't find it all right and as good as you ever drank or can buy from anybody else at any price, send it back at our expense and the next mail will bring you your \$3.20. Could any offer be fairer? This offer is backed by a company with a capital of \$500,000.00, paid in full, and the proud reputation of 36 years of continuous success. We have over a quarter of a million satisfied customers, proving conclusively that our whiskey is all right and that we do exactly as we say. Shipment made in a plain sealed case, with no marks or brands to indicate contents.

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hickory is preferable, a few hours each day, for a period of ten days. Rub over with hickory ashes and leave them hanging for three weeks, after which wrap in paper and put in bags. They are best from one to two years old.

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"I remember once," said Uncle Eb, "I praised a woman's pie. We were over in Canada buyin' cattle. The woman she asked me if there was anything I'd like to hev fer my dinner. I told her that I was very fond o' berry pie, so she made one. It came on the table in a pan. I didn't know what 'twas, er mebbe I could hev made an excuse an' got away. Suddenly the woman began to cut it.

"I've made that pie you asked fer," she said. 'It took me a long time, but here 'tis, an' I hope you'll like it.'

"The pie was about three inches thick, an' there was only jest a leetle streak o' red stain through the middle o' it where the berries oughter be."

The old man paused a moment.

"Wall," he continued, with a sigh, "o' course I hed to eat that pie. It was the greatest obstacle I ever encountered. Fer a minnit I felt as if I was ketched in a bear-trap. But I looked as pleasant as possible, an' went to work on that piece o' pie. I no sooner got through than it went to work on me. There wa'n't much left o' me next day. I lay there sick abed, an' the good woman she brought up another pie. She wanted to please me, an' I hedn't the heart to tell her what I thought o' her bakin', but she pressed it on me."

"No more, thank you," says I.

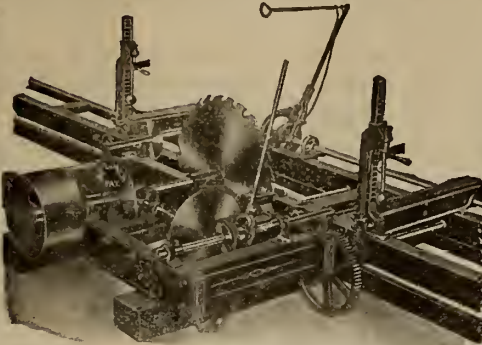
"I thought you said it was good," says she, with a look o' disappointment.

"Madam," says I, 'the pie is good, but I ain't good enough to eat it. I ain't even joined the church yit. Give me a leetle more time fer preparation.'

—Irving Bacheller, in *Leslie's Monthly*.

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GUSTAVUS F. SWIFT'S MOTTOES.

Gustavus F. Swift, the late head of the great packing house of Swift and Company, Chicago, left an estate worth over seven million dollars. Perhaps Mr. Swift did not enjoy all the pleasures of life; in fact, he was known to have missed many that even money can not buy, and, perhaps, there are people who believe that his mode of life was not ideal, but he left to the young men of the country—and some old ones as well—a greater legacy than can be measured by wealth. He left the example of his life and the original maxims which were his guide in building a great business. All of these maxims have been collected, and are presented herewith, complete, for the first time:—

No man, however rich, has enough money to waste in putting on style.

The richer a man gets the more careful he should be to keep his head level.

Business, religion and pleasure of the right kind should be the only things in life for any man.

A big head and a big bank account were never found together to the credit of any one, and never will be.

No young man is rich enough to smoke twenty-five-cent cigars.

Every time a man loses his temper he loses his head, and when he loses his head he loses several chances.

Next to knowing your own business, it's a mighty good thing to know as much about your neighbor's as possible, especially if he's in the same line.

The best a man ever did shouldn't be his standard for the rest of his life.

The successful men of to-day worked mighty hard for what they've got. The men of to-morrow will have to work harder to get it away.

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"Yes," said the old man, addressing his young visitor, "I am proud of my girls, and would like to see them comfortably married; and as I have a little money, they will not go to their husbands penniless. There's Mary, twenty-five years old, and a real good girl. I shall give her five thousand dollars when she marries. Then comes Bet, who won't see thirty-five again, and I shall give her ten thousand dollars, and the man who takes Eliza, who is forty, will have fifteen thousand dollars with her."


The young man reflected a moment or so, and then inquired, "You haven't one about fifty, have you?"

Uncle Sam, in the person of 10 of his government officials, has charge of every department of the Hayner Distillery. During the entire process of distillation, after the whiskey is stored in their warehouses, during the seven years it remains there, from the very grain they buy to the whiskey they get, Uncle Sam is constantly on the watch to see that every thing is all right. They dare not take a gallon of their own whiskey from their own warehouse unless he says its all right. And when he does say so, that whiskey goes direct to you, with all its original richness and flavor, carrying a United States registered distiller's guarantee

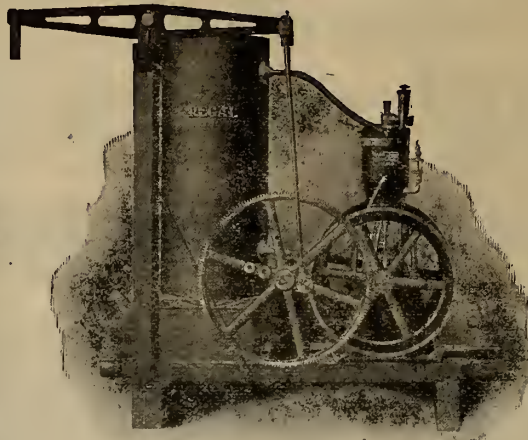
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Butcher's Lard, pound.....	10c	Cocoanuts, each	4c
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HIS BESETTING SIN.

Ephraim was a man of importance, being an elder in the Baptist Church and much given to exhortation, prayer, and song. His cabin was the scene of many a "revival," and the powerful prayers offered by Ephraim on these occasions were the wonder and admiration of the colored population.

With all his religious ardor, however, there were times when the pleasures of the world appealed strongly to him. Seeing him approach one morning with downcast eyes and an air of general dejection, Colonel Snead accosted him thus:

"Hello, Eph.! you look as if you were going to your own funeral. What's the matter?"

"Well, Kunnel, I feels bad, suh," replied Eph.; "de 'casion am a ser'ous one, suh. You know de young folks done hab a party at Nick Finney's de udder night, an' as I's been a-wrastlin' in pray'r fer de salvation ob Nick's soul for a pow'ful long time, I done thought I'd 'cept de inversion an' go, an' maybe I mout drap a word or two dat would tech his heart. But dey was mighty leetle chance ter talk ter Nick 'bout 'ligion, fer dat nigger will dance whenever he heah a fiddle. Well, suh, I went, an' now dey claims as how I was a-dancin', an' I's ter be tried ter-day an' *put outen de chuch*."

"Well, Eph., that's pretty hard luck, but they ought to know that an elder

of your standing would not indulge in anything so worldly as dancing," replied the Colonel with a twinkle in his eye, well knowing that Eph.'s besetting sin was not tripping the light fantastic.

"I hopes so, Kunnel, I hopes so," rejoined Eph. in a tone of utter despair as he trudged on towards the town.

Late the same afternoon Colonel Snead heard a voice singing lustily "I's gwine ter jine de band," and recognizing Eph., he asked,—

"How did the trial go, Eph.?"

"Dey cl'ar'd me, Kunnel, bress de Lawd! dey cl'ar'd me."

"Cleared you, did they? that's good. Then you proved you'd not been dancing?" said the Colonel.

"No, suh, Kunnel, dey proved it on me all right, but dey 'lowed I was drunk an' didn' know what I was doin', so dey cl'ar'd me, Kunnel—bress de Lawd!"—PRUDENCE BAXTER, in *November Lippincott's*.

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NOTE.—Whalebone is a richly colored bay horse of fine size, handsome and well formed. His disposition is perfect. He has sired Visitor, 2:26½, and other winners.

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(See American Trotting Register, Vol. XIV.)

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ABRAHAM LINCOLN'S PRESCRIPTION.

There is a story, still current in Illinois, which says that an old farmer friend of President Lincoln's, who used to correspond with him, complained on one occasion of his poor health. He received the following reply, which is quoted in Illinois as "Lincoln's prescription:" "Do not worry. Eat three square meals a day. Say your prayers. Think of your wife. Be courteous to your creditors. Keep your digestion good. Steer clear of biliousness. Exercise. Go slow and go easy. Maybe there are other things that your especial case requires to make you happy; but, my dear friend, these, I reckon, will give you a good lift."

This advice is doubtless applicable in its entirety to many Americans in every state of the Union to-day. There are parts of it which apply to us generally—as a nation. "Do not worry. Keep your digestion good. Go slow and go easy." It would be difficult to find an American who has not some-

thing to amend on these points. Worry and dyspepsia have assumed the proportions of national evils, and they are both more or less the results of undue haste. There is no surer way to promote dyspepsia than to be in a constant state of hurry, and nothing will so surely give one the "blues" or incline one to worrying and fretting than dyspepsia. Our native institution—the "quick lunch" restaurant,—is responsible for a large proportion of the physical ills of business people in large cities. Eating hastily—"bolting" one's food, as it is popularly expressed,—is enough to ruin the digestive organs of an ostrich. A man would better eat half as much as usual at the midday meal,—which is usually the most hurried,—and take time to masticate properly what he does put into his stomach. Better still would it be if he would give himself ample time to relax and eat a light lunch without allowing any thought of business to intrude on this necessary period of relaxation.—Success.

Soak your new toothbrush in water over night to insure longer wear.

To remove mildew, use lemon juice and sunshine; or, if deep-seated, soak in a solution of one tablespoonful of chloride of lime in four quarts of cold water, until the mildew has disappeared. Rinse several times in clear water.

Soap improves with keeping, so it should be bought in large quantities. Before storing it, however, it is well to cut the bars into convenient pieces, for this most easily done when it is soft. The cutting may be done with a piece of string or wire more easily than with a knife.

Keep a flour barrel elevated at least two inches from the floor on a rack, to allow a current of fresh air to pass under it and prevent dampness collecting at the bottom. Do not allow any groceries or provisions with a strong odor near the flour barrel. Nothing absorbs odors more certainly than flour.

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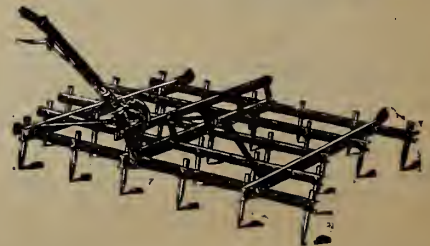
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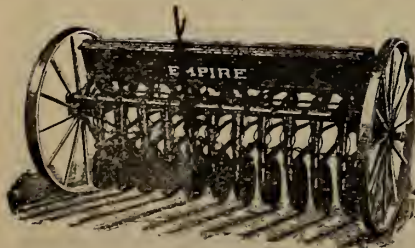
DISC HARROWS. (ALL SIZES.)



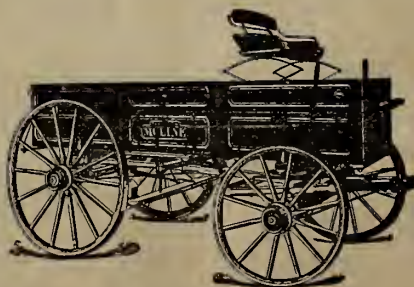
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ALL STEEL LEVER HARROW.



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WOOD AND STEEL ROLLERS.

PLOWS AND PLOW REPAIRS of all kinds. We make plows for all purposes and sell them on their merits. FEED AND ENSILAGE CUTTERS, CORN SHELLERS, ENGINES, SAW MILLS, CORN AND COB MILLS, ETC., ETC.

We solicit inquiries for anything desired. Write for circulars.

13 So. Fifteenth Street,
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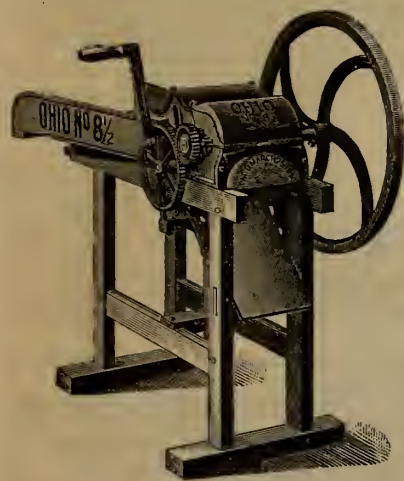
RICHMOND, VA. THE CALL-WATT CO.

WHY USE DANGEROUS BARB WIRE

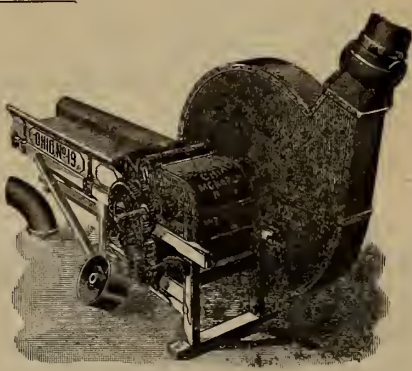
WHEN AN
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WIRE FENCE
CAN BE BOUGHT AT EVEN
LESS COST?



THE AMERICAN FIELD FENCING Is made in many heights and styles for turning the smallest to the largest animal. Write for special catalogue and prices.



The Ohio Feed and Ensil-
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Rapid Cutting. Furnished with either cutter
or shredder head, or both, and with blower
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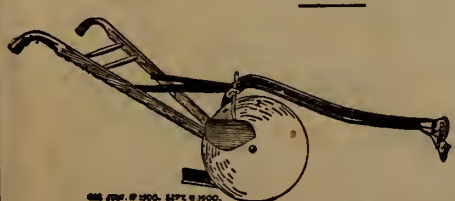


IDEAL FEED MILLS AND POWER combined grinds all kinds of shell grain as well as corn and cob. **THE POWER** attachment is very valuable for **RUNNING WOOD SAWS AND OTHER MACHINERY.**

IDEAL DUPLEX FEED MILLS for steam power are very strong and grind rapidly.



Triple Geared Feed Mill and Power Combined.



THE FOWLER DISC PLOW will not choke in thick, rank weeds or briars. Cuts a furrow 12 inches deep and 14 inches wide with much less draft than any other plow. Only requires two ordinary horses.

BUGGIES, CARRIAGES, HARNESS, ROBES, WAGONS, CORN SHELLERS, WOOD SAWS, THE FULLEST STOCK OF AGRICULTURAL IMPLEMENTS.

- No. 19. 1-horse ungeared feed mill, grinds corn and cob and shell grain. Price, \$16.00.
 - No. 20. 2-horse ungeared feed mill, grinds corn and cob and shell grain. Price, \$19.00.
- Special catalogues on application.

THE IMPLEMENT CO., 1302 and 1304 E. Main St., Richmond, Va.

WHY HE WAS NOT PROMOTED.

He watched the clock.
 He was always grumbling.
 He was always behindhand.
 He had no iron in his blood.
 He was willing, but unfitted.
 He didn't believe in himself.
 He asked too many questions.
 He was stung by a bad book.
 His stock excuse was "I forgot."
 He wasn't ready for the next step.
 He did not put his heart in his work.
 He learned nothing from his blunders.

He felt that he was above his position.

He chose his friends among his inferiors.

He was content to be a second-rate man.

He ruined his ability by half-doing things.

He never dared to act on his own judgment.

He did not think it worth while to learn how.

He tried to make "bluff" take the place of ability.

He thought he must take amusement every evening.

Familiarity with slipshod methods paralyzed his ideal.

He thought it was clever to use coarse and profane language.

He was ashamed of his parents because they were old-fashioned.

He imitated the habits of men who could stand more than he could.

He did not learn that the best part of his salary was not in his pay-envelope.—Orison Swett Marden, in Success.

ANECDOTES.

A Southern gentleman in ante-bellum days had a visit from a very pompous and *painfully* aristocratic friend. After the visit was over the host asked an old negro who was a favorite and privileged servant, what he thought of Judge B—. "Wall, Master," Sam replied, "he'll do pretty well, but mity *pomperious* an' usurpious."

A young gentleman who had just started out as a public school teacher, and wished to impress his pupils with his superior knowledge and dignity, called up the scholars on the first morning, to ascertain their names, etc. The first gave his name as "Claude." "No," said the teacher, "your proper name is Claudius." The next said his name was "Jule." "No," said the teacher again, "your name is Julius." The third was a spry little fellow of seven or eight, and when the master said, "Well, my little man, can you tell me your name?" he answered with alacrity, "Yes, sir, my name is Billius!"

This really occurred this fall in Pittsylvania county, Va.

WHY THE LORD MADE SO MANY.

On Lincoln's lips, the words that often came were these,—*"The common people."* To those who lived with him and talked with him, especially during the Civil War, it seemed as if he could never cease thinking of those who were just human beings, unlettered, unknown, inglorious. A congressman from a western district approached him during his term as President, and apologized for presenting a petition from his constituents, because they were common people.

"Well," said Lincoln, pleasantly, "God must love the common people. He's made so many of 'em."—Success.

HARD ON MR. PHILLIPS.

Wendell Phillips was in a hotel at Charleston, had breakfast in his room, and was served by a slave. Mr. Phillips spoke to him as an abolitionist, but the other seemed to be more concerned about the breakfast than about himself. Finally Mr. Phillips told him to go away, saying he could not bear to be waited upon by a slave. The other remonstrated, "Scuse me, massa, but Ise 'bliged to stay yere, 'cause Ise 'sponsible fo' de silverware."—*Western Christian Advocate.*

Mention the *Southern Planter* in writing.

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 The HUGHES BUGGY CO.,
 The VIRGINIA WAGON CO.

All of Virginia.

These vehicles are guaranteed to be as good as can be bought elsewhere; material and workmanship unsurpassed; all sizes and styles, prices low. We can save you time, money and freight by purchasing our vehicles. Send for our illustrated catalogues. Drop in our warehouse and inspect our stock. Inquiries cheerfully answered.

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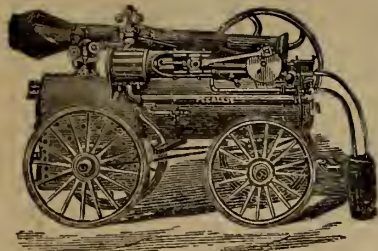
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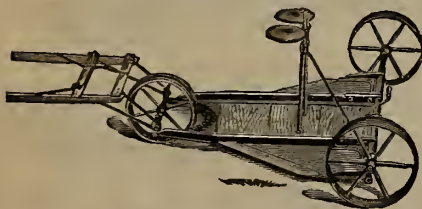
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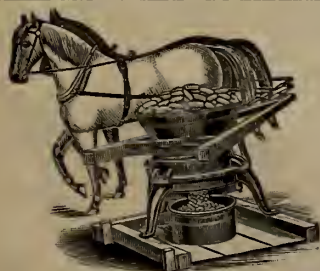
PEERLESS ENGINE.



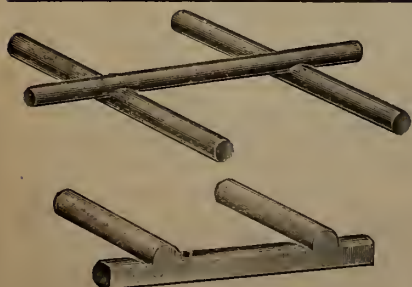
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DAIN CORN CUTTER.



STAR SWEEP MILL.



SECTIONS OF WIRE FENCE.

A full stock always on hand, and prompt shipments guaranteed. South Bend, Dixie and Farmer's Friend Plows and repairs. The Hancock Rotary Disc Plow, warranted to go in the ground where all others fail.

Hocking Valley Feed Cutters, Cyclone Shredders, Smalley Feed Cutters, Dain Corn Cutters. Equal to any made. Staver Buckeye Feed Mill and Horse Power Combined. Star Sweep Mill. Either grinds corn on cob or shelled.

Whitman All-Steel, full circle Hay Presses. George Ertel Company's full circle Hay Presses. Rapid Fire Horse Power Hay Press, for one horse, a good, cheap press. Will put up from 150 to 200 bales a day. The well known Minnich Brand Baling Presses.

Hocking Valley Wine and Cider Mills. Hard wood rollers. The best mill made.

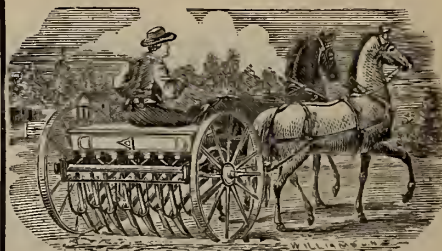
Hocking Valley Corn Shellers, for hand or power. Smalley Electric Pole and Wood Saws, for steam or horse power. Peerless Engines and Saw Mills always in stock. Several good second-hand Engines and other second-hand machinery for sale. "Pittsburgh Perfect" fencing, electrically welded. See cuts showing weld. Barb Wire, Plain Galvanized Wire, Baling Wire and Bale Ties. Continental Disc Harrows, Buffalo and Lean Spike Harrows.

The celebrated Columbus, Ohio, Buggies, Carriages, Runabouts, and Traps. Farm Wagons and Delivery Wagons, a complete stock.

Correspondence solicited.



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HAND POWER CUTTER.

These machines sell at sight. They have heavy fly wheels and make three cuts to each turn of the crank. They will cut hay, straw or fodder, and will cut from 1/2 to 2 inches. They are shipped K. D., securing the lowest possible freight rates.

LITTLE GIANT CORN SHELLER.

The frame is made of thoroughly dry hard wood. The joints mortised tenoned and bolted. The bearings are bolted on the frame instead of screwed. The iron work is made from the very best material, every piece is carefully inspected before being put on. This machine is high-grade all the way through. It is handsomely painted, striped and varnished.



ROSS....

Fodder Cutters, Fodder Shredders, Cutters for all purposes, Corn Shellers, Grinding Mills, Horse Powers and Wood Saws.



Wood Saws for long or short wood. Wood or Steel frame.



Kemp's Improved Manure Spreader. Three Sizes.



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Scientific Sweep Mills in five sizes, Geared—plain and combined, with horse-power.

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58 styles and sizes. For horse or steam power
Write for prices and catalogues.



Milwaukee Corn Husker and Fodder Shredder,

Has Steel Gears and Steel Clutches and Rolls Easily
Adjusted to all Conditions of Corn.

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A. T. Broadus, Old Church.
H. S. Saunders, Shirley.
Mrs. Alice Bransford, Shirley.
C. C. Branch, Toano.

M. I. Norvell, Island.
S. D. Ivey, Petersburg.
J. A. Maddox, Triangle.
W. H. Walton, Rice Depot.
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North Carolina:
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The above parties will cheerfully give you testimonials as to the merits of the MILWAUKEE. We are ready at all times to go in the field with any other husker made, and will guarantee the MILWAUKEE TO BE THE BEST MADE; and will also guarantee it to do more work than any other made, and SHELL LESS CORN, AND COST LESS FOR REPAIRS and last longer. Write the parties that are using them; also write for special circulars and testimonials we have, which will be sent with pleasure.

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